

BOSTON'S OWN COMPUTER NEWSMAGAZINE

COMPUTER *Currents*

Volume 6 Number 8

MONTHLY

August 1991

SPECIAL REPORT:

Multimedia Personal Computing

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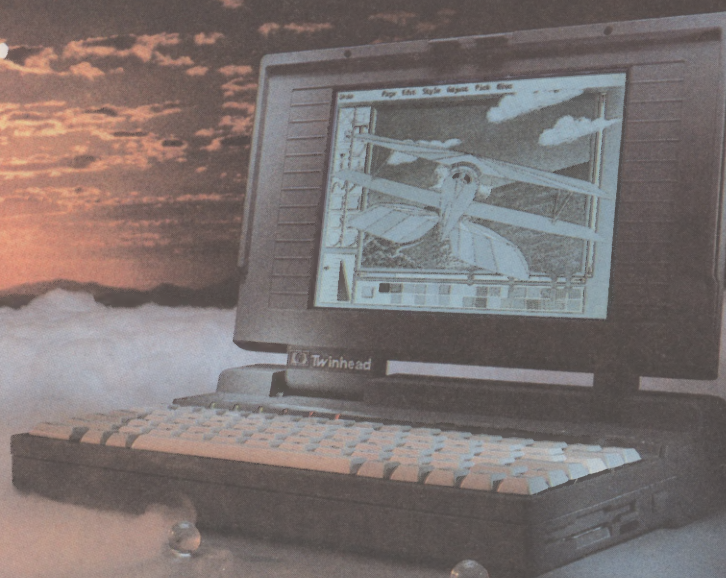
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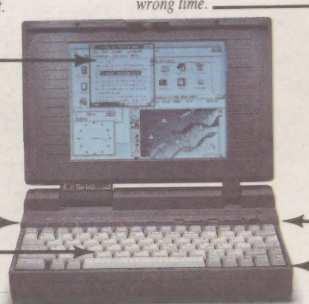
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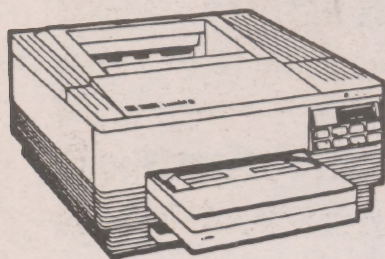
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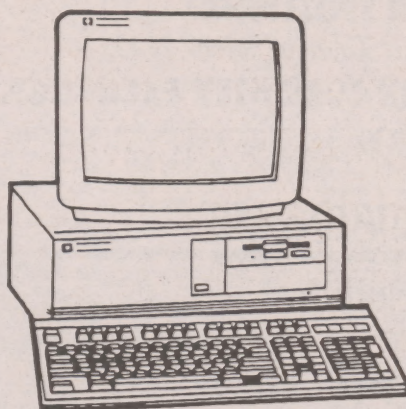
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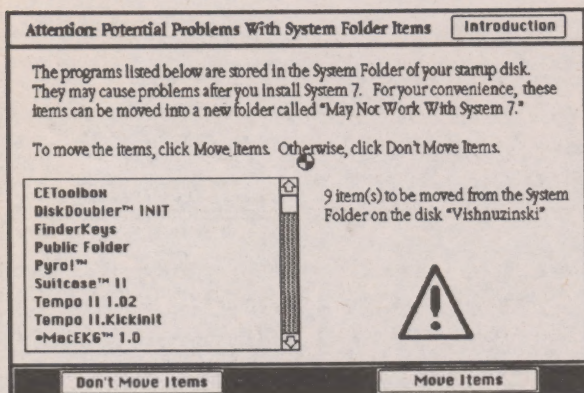
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COMPUTER *Currents*

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Silent, still images have received new life on computer displays as "multimedia" has evolved into an increasingly accessible and useful desktop tool, interacting with users through sound, graphics and animation. Is your computer a "multimedia computer?" Do you need to make it one? In this special report, we examine just what multimedia means today, and how this changing application will affect you and your computer's future.

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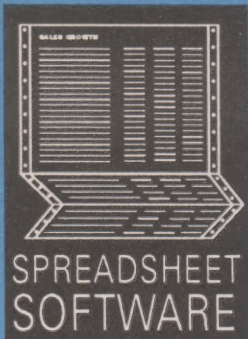
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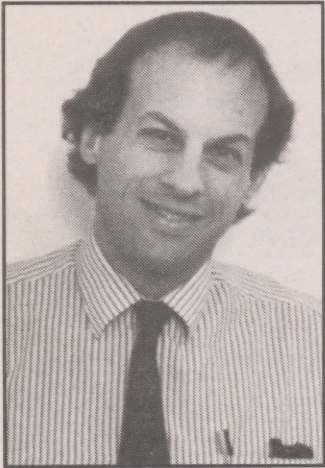
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Computer Industry Plays "Truth or Dare"

Recent News is Downright Astonishing



Computer industry watchers can stop reading the *National Enquirer* for racy headlines and incredible news. Over the past few months, the business and trade press has been full of amazing tales, starting with the revelation of supposedly confidential notes of a management staff meeting where IBM Chairman John Akers blasted his own company for not delivering products and services at a competitive pace.

Some weeks later, IBM's new-found enemy, Microsoft Corp., chimed in with its own secret memo. In this equally blunt document, Microsoft chairman Bill Gates gives his view of the current "nightmare" scenario of increasingly competitive pressures, the Federal Trade Commission investigation into Microsoft's alleged monopolistic practices, and the still unresolved suit brought by Apple Computer against it.

Strange Bedfellows

The "nightmare" worsened shortly after the memo's release when IBM announced it was strengthening ties to Microsoft rivals Borland (OS/2 development) and Lotus (IBM will market Lotus' Notes). Borland continued to make headlines with the bold acquisition of Ashton-Tate, making it the undisputed PC database leader. More recently, Microsoft's oldest rival, Digital Research, was bought by networking king, Novell, another Microsoft adversary and one of the few to beat Microsoft soundly in the marketplace.

Apple made a few headlines of its own. First was the news it was cutting its staff by ten percent, some 1,500 people, in the light of booming sales and slimmer profit margins. Then the announcement of an alliance with IBM, YES IBM!, to develop workstation-class software. (Although any real products from this alliance are years away, Bill Gates probably had a few restless nights over this one too!)

It's Show Time

And there's surely more news to come. MacWorld Expo and the Windows & OS/2 Conference are this month, making this an unusually active summer for the computer industry. The Windows & OS/2 show coincides with a week of festivities for IBM which will celebrate the 10th anniversary of the original IBM Personal Computer's introduction.

For those of you who might not remember it, that "ancient" PC had no graphics capability, sported cassette tape storage and 64K RAM. It wasn't the first personal computer; the Commodore PET, Apple II, Tandy TRS-80 and a host of others came before it, but it was surely the milestone machine to convince American Business the PC revolution was at hand. Every year it touches more people, hopefully in helpful, productive ways.

We are surely living the ancient Chinese curse, "May you live in interesting times." I wouldn't want it any other way.

David Needle

LETTERS

Editor:

A busy week of technical support calls has prompted me to write this letter.

As an IBM Shareware and Public Domain vendor we try to make our disks as easy to use as possible. Instructions are printed on the label. Batch files are added for easy program execution and disks that are archived (sometimes we add many games to a disk, exceeding the disk's capacity) are made self-extracting and use telop files for prompting and easy installation.

However, the majority of technical support calls we receive are because the user failed to read the documentation files the author of the program has provided. These files can be found on the disk and usually have a .DOC, .TXT, or .MAN filename extension.

To make reading these files easier we have developed a

program called Huge File Viewer (from the TechStaff Tools Collection, reviewed Feb. '91, *Computer Shopper* magazine). Huge File Viewer can read standard ASCII text files and those in the format used by WordStar.

In our effort to further support shareware and alleviate some of our technical support calls we are offering the Huge File Viewer program separate from the TechStaff Tools Collection (\$19.95 + \$3 s&h) for \$5 postpaid (cash/check or charge).

Those interested can send payment to TechStaff Corporation, P.O. Box 823, Watertown, MA 02272 or call 617/924-0306.

*Jim Patriarca
President, TechStaff
Watertown, Mass.*

Windows on an XT?

Editor:

I think that your readers might like to know that Windows 3 does indeed run on XTs, and the manual inside the package even gives explicit directions for setting up Windows 3 in real mode on an XT. Windows 3 can run in as little as 512K of memory, but, with 640K of memory, it will even load and run "large" professional applications like the Whitewater Resources Toolkit (I have an XT and have verified this claim). It also runs shareware games like Klotz and Atroids, and naturally does all the things for the bundled applications that come with Windows. Furthermore, the XT version of Windows 3 performs almost as well as the PC/Geos windowing GUI system that is sold for XTs. (Of course, this reader believes that the applications bundled with PC/Geos are much better than their Windows 3 counterparts.)

The reason for telling you

this is to alert parents and hobbyists to the possibility of having more than one GUI available to play with and learn from. Certainly, this is one way to give a teenager an introduction to "grown-up" programming without spending a bundle. All that is needed is some kind of graphics monitor (monochrome will do quite well, and works better than CGA), either a 1.2MB or 720K floppy diskette drive on the XT (the 720K drive is more XT-compatible) to read the Windows setup, a hard disk with 10MB available for use by Windows (and/or PC/Geos), 640K of memory, and, if possible but not at all necessary, an expanded-memory board with 512K or so of RAM for the disk cache program that comes with Windows 3.

*Victor Schneider, Ph.D.
Schneider Software
Brighton, Mass.*

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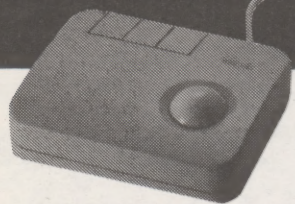
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BOSTON BEAT



By Marguerite Zientara

The Original Multimedia Machine: Commodore Amiga

The computer of choice for many artists, musicians and designers is the Commodore Amiga, which has offered color, multitasking and multimedia applications at low cost for years. In the IBM PC world, by contrast, a new product that adds sound to existing graphics software is big news, even today (see story, page 11).

Amiga users, always among the most enthusiastic in the computer realm, are even more so these days, says Boston Computer Society (BCS) Amiga Group activist Cary Wasserman. "There are a lot of new things coming out that are all, in effect, bringing [the Amiga] maybe past speed.

"The Amiga was way ahead of its time six years ago, but it didn't move on that," observes the Cambridge, Mass.-based photographic artist. "In the last couple of years, it's begun to move at an accelerating rate because of the competition out there." Indeed, most recently, Commodore's newest Amiga 3000, NewTek's Video Toaster peripheral, and more new multimedia and animation software are making life most exciting for Amigans.

"To do multimedia is a pretty complex undertaking," Wasserman notes, "since that really means being proficient in three or four 'languages' that are in a sense mutually exclusive — namely, music, visual thinking, and narrative. To become truly proficient, each one is really a major undertaking in itself."

Enter the Amiga, a very giving computer. "I think the outstanding feature of the Amiga is that it provides a sense that you can, in fact, do all of those things," he says. "You can be a one-person creative force in a way that was not possible in the past. In other words, you could be that kind of person and not have to have 10 years of musical training." Some training, perhaps, and innate talent will suffice.

"The Amiga has made it possible for an individual to be a complete creative being and not just able to exploit one particular facet of [his or her] creativity," Wasserman says, "and that's the exciting thing." So, while the rest of the computer world catches on and catches up, the Amiga is already the reigning Queen of Multimedia. (For more on Amiga Multimedia, see page 26.)

Can Machines Think?

The brilliant British mathematician Alan M. Turing first posed the question, "Can a Machine Think?" in an essay of that title written in the mid-1940s, and logicians have been debating the issue ever since. I suppose the query will continue to be batted around until someone comes up with a definitive "yes!"

That moment of certainty may occur right here in Boston at The Computer Museum, which will hold the first round of the classic "Turing Test" of machine intelligence on November 8, 1991. The Turing Test requires a computer to emulate human behavior (via a computer terminal) so well that it fools human judges into thinking its responses are from a person.

The Museum's contest will pit man against machine in a format akin to a public chess match. Judges will hold "conversations" on several terminals, with responses to be controlled either by human confederates or computers.

A tally of scores comparing human and computer performances will be kept, with the programmer whose computer "wins" receiving \$1,500 and a bronze medal. The cash award will be increased each year.

It is generally accepted that, at this time, no computer can meet the challenge of an "open-ended" conversation, therefore each conversation in the contest will be limited to a particular subject. In future years, however, open-ended Turing Tests will be held.

Here's the best part. When a computer actually passes an open-ended test, \$100,000 will be awarded to the program's author. New York philanthropist Dr. Hugh Loebner, president of Crown Industries, Inc., has put up the \$100,000.

More than 130 individuals and institutions around the world have requested application materials for this year's contest, whose finalists will be chosen by September 15. Although it's too late to apply for the 1991 Turing Test, applications are being accepted for 1992 (deadline: May 31, 1992).

For more information on applying, write or call: Cambridge Center for Behavioral Studies, 11 Waterhouse Street, Cambridge, MA 02138. Telephone 617/491-9020. For information on the event itself, call the Museum at 617/426-2800. The contest is being administered by the Center and the Museum.

SEE PAGE 10

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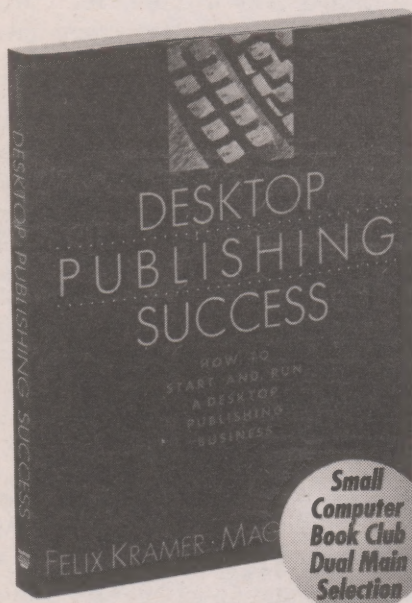
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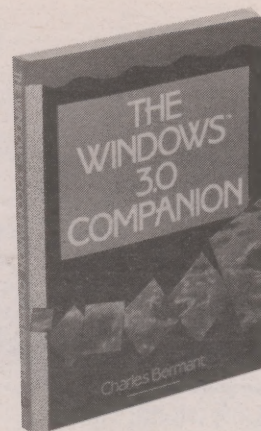
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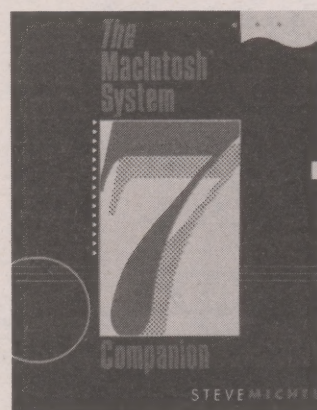
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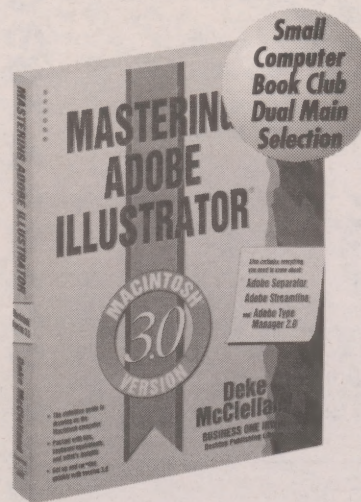


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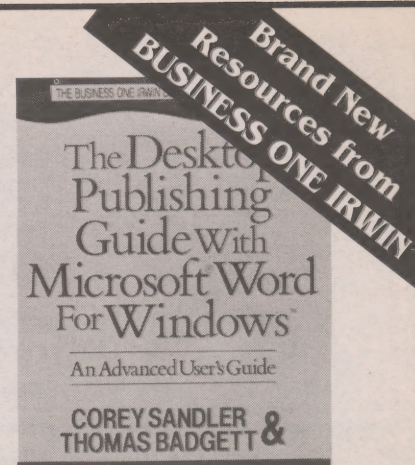
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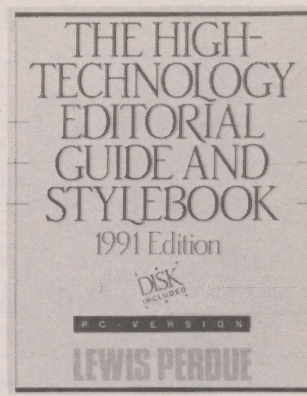
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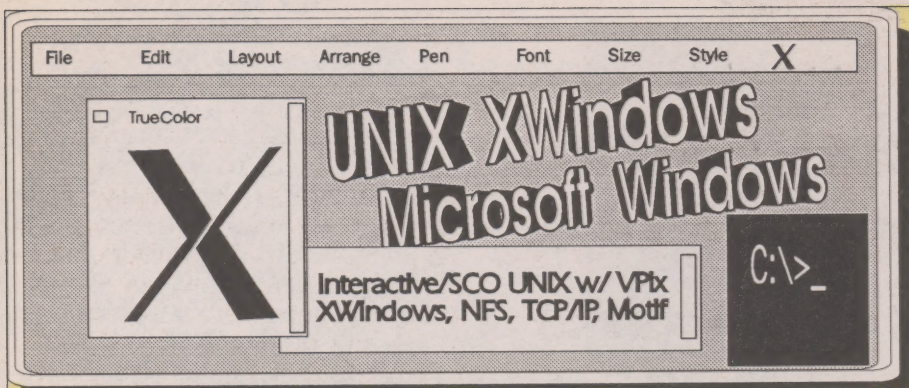
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FROM PAGE 8

Electronic Book Debuts

The Directory Of Free Computer Publications, a so-called "electronic book," is available for immediate shipment from Computer Insights, 2090 Main Street, Concord, MA 01742. For IBM PC and compatible users, the book costs \$9.95 plus \$1.55 P&H and 5% Mass. sales tax, if applicable.

The book is actually a combination of directory software and database files. Navigating through the database is "similar to turning the pages of a book," says company president Charles LaGasse.

The book contains listings of 200 free publications from more than 150 companies, including books, catalogs, magazines and newsletters, covering more than 60 computer-related subject areas. The firm's telephone number is 508/369-9306.

Kudos Korner

Congratulations are in order for the following winners:

Ergo Computing, Inc.'s "Brick" portable desktop computer (Boston Computer Currents, March 1991) has won a Gold Award for excellence in design from the Industrial Designers Society of America (IDSA). Ergo won the top award for Computers and Office Equipment in IDSA's Business and Industrial Products category. Ergo's staff did the Brick's electrical engineering, while Bleck Design Group (Chelmsford, Mass.) developed its artful industrial design. Ergo is based in Peabody, Mass.

Alpha Software Corp., Burlington, Mass. (Boston Computer Currents, November 1990), revealing its monthly ship rates of Alpha Four for the first time ever, is found to be the third best-selling relational database management system in the U.S. Alpha Four "emerged as a surprise player in 1989 and particularly in 1990," reported International Data Corp. (IDC) (Framingham, Mass.), noting that the software "more than doubled its unit shipments and revenue in 1990." Alpha ships 10,000 units of Alpha Four per month and expects to triple that in 1991.

Nashua, N.H.-based Great American Software, Inc. (Boston Computer Currents, March 1990) looks impressive in two recent surveys. In its annual ranking of the top 100 PC software companies, Soft•letter (Watertown, Mass.) found Great American to be the fourth fastest-growing software company in the U.S. during 1990. Great American's sales last year were \$7.5

million, a 144-percent increase over 1989. In May, *Accounting Today* magazine found the firm's One-Write Plus Accounting System to be the number one recommended low-end general ledger software package among accountants at smaller firms.

Save The Cartridge, Save The Earth

Laser-printer-cartridge recharger Laser-Mate (Waltham, Mass.) has teamed up with Massachusetts Bay United Way to "Save the Cartridge, Save the Earth." For companies that prefer to buy new — not recharged — cartridges, and thereby generate empty cartridges as trash, Laser-Mate will pick up or pay shipping costs to get the empties, and will donate \$5 per empty cartridge to United Way, in the donor company's name.

The project is the brainchild of Laser-Mate Founder & CEO Paul Mazzapica, who was looking for a way to get more spent cartridges for his business. "I've got more business than I have empties," Mazzapica explains.

"There are people out there who want to start their

recycling program but they don't want to save up 100 cartridges first. They want us to give them 100 recharged cartridges and then they'll give us 100 when they're empty. So I need the empties in order to keep my business growing." Laser-Mate's target goal is 5,000 empties per month, translating into \$25,000 for United Way every month.

With Mazzapica's plan, everybody wins. Laser-Mate gets empty cartridges, United Way gets money, donors get a tax write-off, and the landfills get that many fewer eternal plastic cartridges.

If a company wants to get its empty cartridges recharged, Laser-Mate will also donate \$5 of the money it charges that company for recharging. The client company must request the donation be made.

For those who recycle cartridges, Laser-Mate will pick up, re-manufacture, recharge, pretest and return a cartridge for \$59. All first-time orders get \$10 off.

Laser-Mate is at 180 Elm Street, Waltham, MA 02154. Call the company at 617/894-6283.

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Marguerite Zientara is the author of *The History of Computing*, copyright CW Communications, Inc., 1981; and *Women, Technology & Power*, Amacom Books, New York, 1987.

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Arkay Adds Sound To PC Presentation Graphics Software Without Boards & At Low Cost

By Marguerite Zientara

Ten years ago, Ray Khorram was a student at M.I.T., majoring in electrical engineering and computer science. He also had a business buying and selling used computers, which he operated from his apartment in downtown Boston. He called his company Mitco, after M.I.T.

Today, Khorram's life contains all the same elements, but in a very different configuration. As before, he has his own company, his work revolves around computers, and his present company's name grew out of an acronym. This time, he has transformed his own initials, R.K., into the name of his enterprise.

Arkay Technologies, Inc., founded in 1986, has recently burst on the multimedia scene with a beautifully simple solution to the thorny problem of how to synchronize sound in PC-based business presentations.

Arkay's products add sound to Lotus' Freelance, IBM's Hollywood, Software Publishing's Harvard Graphics and Brightbill-Roberts' Show Partner F/X presentations packages. In the case of Lotus, IBM and Software Publishing, Arkay has forged strategic alliances with the vendors.

Why Is Arkay Unique?

Until now, adding high-quality sound to a graphics presentation has meant installing a sound board in the PC — which can be expensive, and difficult for the non-technical user — or dealing with such complications as tape recorders, which are notorious for miscues and other foul-ups.

Arkay has eliminated such tedium by developing the PC-SoundPort, a \$98 adaptor that plugs into the computer's printer port and connects directly to an amplifier to play digital recordings right from the hard disk. The PC-SoundPort joins Arkay's four other products designed to offer complete multimedia capabilities to PC users (see product line up, page 13).

Also notable in the line-up is the PC-Recorder (\$198), a hand-held sound digitizer with built-in microphone, which also plugs into the printer port and records high-quality sound directly onto a hard or floppy disk.

"Lots of PCs can talk," notes Sam Myers, president of Wired for Sound, Inc. (Orlando, Fla.), "but you're required to buy a sound board, which is a messy piece that you have to put inside. Arkay's is an external plug that's as simple as plugging into a wall socket — for an excellent price."

Myers became so enamored of Arkay's technology after seeing it at last spring's Lotus World show in Boston, that he quickly incorporated as Wired for Sound, became Arkay's sole and exclusive distributor for computer-



Arkay Technologies' President Ray Khorram and two of his company's PC sound products: PC-Recorder (white box to left of mouse), a hand-held sound recording device, and PC-SoundPort, for connecting a PC to an amplified speaker.

based tutorials, and is now working on a tutorial to teach the blind to use popular business software packages.

"This thing is very big, it's really good stuff," Myers says of Arkay's line. "I've called Japan, Germany, all over the world. There is nothing like it, period. No one has this. There's no doubt in my mind that someone will try to copy it, but for right now, he's it."

Although Myers' excitement has to do with the educational potential of the Arkay line, the products are really aimed at the non-technical business user. "We specialize in making it very easy for a business person to add sound to a presentation graphics package, by offering a very similar user interface as their underlying presentation graphics package," Khorram explains.

"I think that what they have implemented, they have implemented very well," says industry analyst William Coggshall, president of New Media Research (Los Altos, Calif.), who saw the Arkay line recently at PC Expo. "They've done a good job, and I think that's very important."

Who Will Use It and How?

Arkay says it targets its products toward "any PC-based user whose responsibilities entail presenting information to others." That includes sales

reps and other business people, as well as graphic designers and anyone working in media-related industries, who can incorporate audio into their comprehensive video presentations.

Business people can use Arkay's products "for enhancing progress reports to management, or as a sales tool for presentations geared to prospective customers," according to the company. Audio enhancements include voice-overs and background music.

Arkay's newly announced Multimedia Extensions software (\$98, includ-

ing PC-SoundPort) lets graphics packages incorporate sound files into graphics presentations. Multimedia Extensions works as a master control program, from which a user can add voice- and machine-recorded sound to presentations. Sound is added precisely where it is needed in the graphics presentation, and can be married to a specific graphic, simplifying segues and eliminating the possibility of miscueing.

To those who may think sound isn't necessary in a sales presentation, Khorram has a few suggestions. "To make a sales presentation in the field more convincing," he says, "you could add customer testimonials to your presentation, in the customers' actual voices."

When a field sales presentation contains many parts that are repeated to every prospect, users could let the computer present the common information, and let the human presenter add the angle unique to each client. "Especially where the presenter is shy with an audience," Khorram points out, "that would make it easier on the presenter and would inject variety into the presentation."

If a sales rep is selling a manufactured product, the rep could easily create background ambiance for his presentation by recording machinery sounds from the factory floor using a laptop and the Arkay PC-Recorder. "For internal sales presentations, the voices of the company chairman and other important people could be recorded," he adds.

If one is presenting information to a bilingual audience, some parts of the presentation could be recorded in the foreign language, "so the presenter does not have to know the foreign language, but the audience feels more comfortable instantly," Khorram suggests.

Save Your Slots

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FROM PREVIOUS PAGE

Arkay line's dimensions (see photo on page 11). The hardware components are notebook-scale in physical size, and well-suited to portables, which simply don't have slots.

In desktop PCs, the plug-in system makes no demands on internal real estate. "As soon as you add a number of different accessories to a desktop system, such as fax boards, scanner boards, tape backup, and modem, there just aren't any more slots left in the computer," Khorram observes. "Eight slots sounds like a lot, but soon they're all gone."

Arkay's sound system not only saves the user a slot, but avoids some troublesome compatibility problems as well. "One thing that very quickly shows up is that in IBM PCs, different cards often require different interrupt levels," Khorram explains, "and very quickly you run out of available interrupt levels before you run out of slots."

"That means you can't configure two cards so they don't compete with each other, and from then on it's just a real nightmare of trying to configure the system, and making sure it all works. Sometimes you find odd incompatibilities, like not being able to use your mouse at the same time as you're using your modem," he adds. "But by connecting to the printer port, we've basically eliminated all that."

Arkay's History

Arkay Technologies grew out of a hobby of Ray Khorram's: laser graphics. In his sophomore year at M.I.T., Khorram was an intern at Digital Equipment Corporation (DEC), where he worked on computer-aided design (CAD) projects.

In 1983, he received his bachelor's degree, and in 1984 his master's degree from M.I.T. — both in electrical engineering and computer science. At that point, Khorram became a full-time employee at DEC. Through his computer work, he started dabbling in laser graphics, and in 1986 started Arkay, to develop a laser graphics projector.

"It was very hard initially," he recalls, "having essentially two full-time jobs." But Khorram was willing to work hard, and Digital didn't mind as long as there was no conflict of interest. In 1988, Arkay introduced its first product, the PC-driven Laser Graphics Projector, which allowed users to create 3-D animated interactive laser shows.

Early in 1990, an opportunity arose that did present a conflict of interest, and Khorram had to make a choice. "An opportunity came along to contribute to the IBM Hollywood presentation graphics product," he explains. "With IBM and DEC being competitors, then I couldn't maintain that sort of distance anymore. It was one or the other."

In February 1990, Khorram left Digital. "I saw presentation graphics as a very hot field that's emerging and I wanted to concentrate on that, so I left DEC for that reason." For IBM's Holly-

wood, Khorram personally developed the Special Text feature, a tool that allows for the shadowing, curving, rotation, sizing, color washing, and mirroring of text.

Along the way, he had also started working on sound products, initially in response to requests by Laser Graphics Projector users who wanted to coordinate sound with their presentations. An examination of the business graphics arena revealed an untapped market.

"I got blown away when I found out what sort of numbers the different companies claim for a user base of their products," he recalls. "Many hundreds of thousands." He decided to concentrate on creating sound for business presentation graphics, starting with major players IBM, Software Publishing and Lotus.

In the fall of 1990, Khorram rented a booth at Comdex in Las Vegas and formally introduced five multimedia products that, together, form a com-

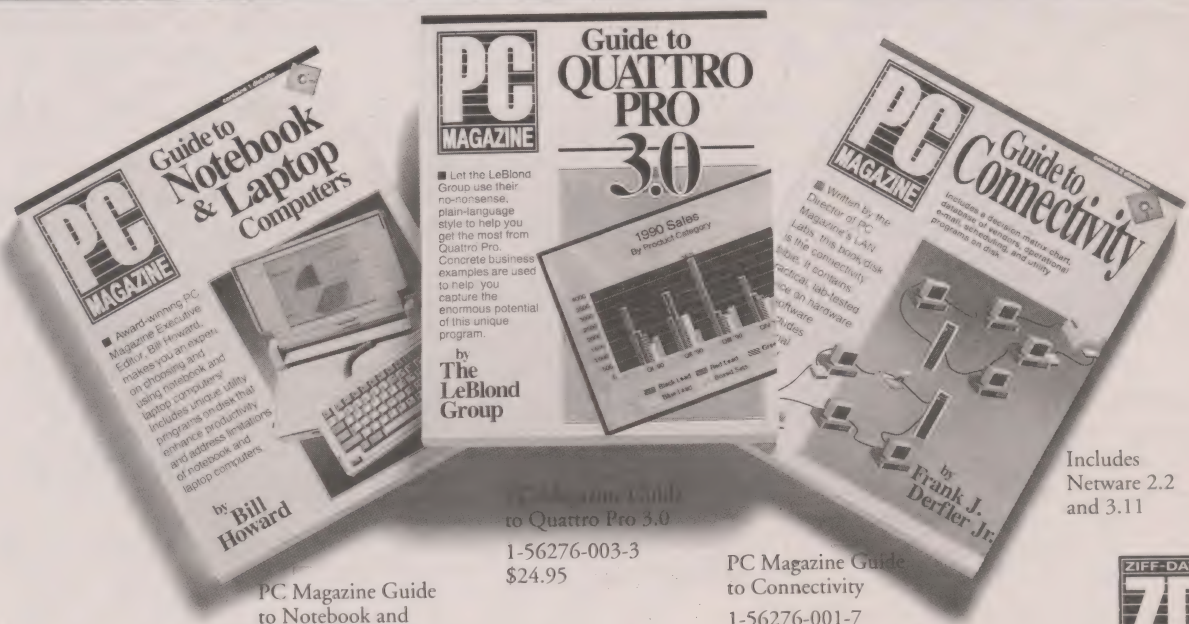
plete package for users wanting to incorporate sound into their graphics presentations.

Formally introduced in February 1991, Arkay's product line includes: PC-SoundPort, PC-Recorder, PC-Sound, Multimedia Extensions, and PC-SoundClips (see sidebar for descriptions). Future plans call for increasing compatibility with other graphics software, implementing graphics presentations over networks, integrating e-mail and voice-



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mail, and porting to OS/2.

As far as visions of success, Khorram has plenty of them. "I think within a year, we'll be a major factor in the market," he projects, "and within three years we might be in a position to go public."

With such a sanguine outlook, could Arkay Technologies be having any problems? Well, there is one. "Everything's moving so fast," Khorram says, "so we have to keep up, and we have to make sure we reach the right kind of decisions as to what to

concentrate on right now and what to do next."

* * *

Arkay Technologies' Product Line-Up

PC-SoundPort, \$98. An adaptor that plugs into a PC's printer port and connects directly to a fist-sized high-quality amplified speaker. (Arkay also resells Bose speakers.) Allows users to execute a multimedia presentation without the expense and installation

difficulties associated with add-in cards. Comes with a choice of either a DOS or Windows driver that supports popular graphics packages. Requires IBM AT or compatible with one parallel port, runs on DOS 3.3 and later or Windows 3.0 and later.

PC-Recorder, \$198. A hand-held sound recording device that lets users record both voice and music audio. Plugs into a PC's printer port and records high-quality sound directly

onto a hard disk. The device has a line-in jack and includes software to run under DOS or Windows. Requires IBM AT or compatible with one parallel port, runs on DOS 3.3 and later or Windows 3.0 and later.

PC-Sound software, \$98. Expands the sound capabilities of a PC's internal speaker from fuzzy beeps to clear voice, music and other sound effects, without the need to install hardware. PC-Sound plays back digitized sound files directly from the disk. Requires IBM AT or compatible with one parallel port, runs on DOS 3.3 and later or Windows 3.0 and later.

Multimedia Extensions software, \$98. Includes PC-SoundPort hardware. Introduced in June 1991, the software lets users incorporate sound files into leading business graphics packages. Works as a master control program, from which a user can add voice- and machine-recorded sound linked to visuals. Eliminates the need to worry about cueing a recording device and segueing into other areas of a presentation. Requires an IBM AT or compatible with at least 1MB installed memory, operating with DOS 3.3 and later or Windows 3.0 and later. Users must buy Multimedia Extensions for each graphics presentations package.

PC-Sound for IBM Hollywood, \$98. The version of Multimedia Extensions written for IBM's Hollywood software. Requires Windows 3.0 or later and 2MB of memory. Ships with PC-SoundPort and four disks of PC-SoundClips (see below).

PC-SoundClips, \$25 per disk. A library of music and sound effects licensed from the two top suppliers to the major television networks, for use in presentations. There are currently 10 disks available.

MediaBoss, \$495. Scheduled for release late in 1991, this remote control device will enable users to orchestrate an entire multimedia presentation, including slides, computer graphics, VCR, video, and stereo sound, all from a single PC platform. MediaBoss will connect directly to a PC's serial port and will work with any IBM AT or compatible.

Laser Graphics Projector, one-color, \$9,800. Includes PC. Allows users to create three-dimensional, animated interactive laser shows using a mouse. A 256-color version costs \$50,000.

For all its products, Arkay offers customers unlimited free technical support and a toll-free support line. Arkay Technologies, Inc. is at 5 Tsienneto Road, Suite 2, Derry, NH 03038. Telephone 603/425-2149.

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Marguerite Zientara is the author of *The History of Computing*, copyright CW Communications, Inc., 1981; and *Women, Technology & Power*, Amacom Books, New York, 1987.

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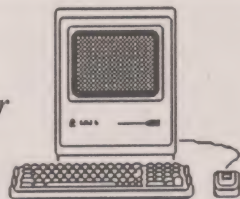
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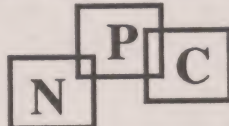
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NEWS & INDUSTRY BOSTON COMPUTER NEWS

Imaging Automation Offers Image Capture Software

Imaging Automation, Inc. (IA) (Merrimack, N.H.) has released UtilEyes, image capture software for use in desktop publishing, graphics arts, presentation graphics, image processing and multimedia applications.

UtilEyes is said to support the Hewlett-Packard ScanJet and the full range of IA PC-Eye video digitizers, as well as virtually all modes of most manufacturers' VGA and SuperVGA display adapters.

UtilEyes reportedly can capture, display and store in a TIF, PCX or TGA format images with up to 1024 x 768 x 256 grays/colors. The user has pull-down menu control of brightness, contrast, area of interest, and mode. A continuous FOCUS window permits near real-time adjustment of camera

focus and position lighting.

UtilEyes is compatible with most desktop publishing and word processing software, such as Aldus PageMaker, Ventura Publisher and WordPerfect, as well as graphic arts/paint packages such as PC Paintbrush IV, Dr. Halo and CorelDraw, and printer support packages like Pizzazz Plus.

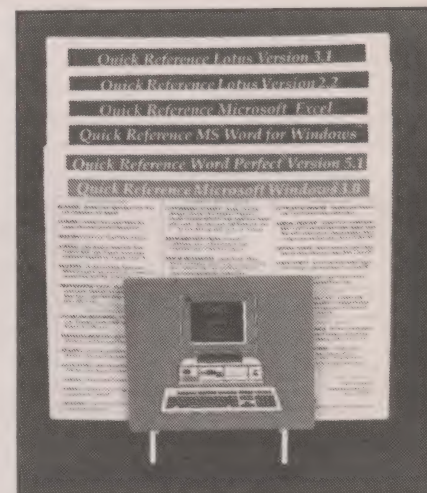
The UtilEyes-Monochrome package is included with all PC-Eye products; a \$125 upgrade for existing PC-Eye users is available. UtilEyes-Color is a separate \$250 package whose range of color supported for display is a direct function of the VGA card being used. IA is at 7 Henry Clay Drive, Merrimack, NH 03054. Telephone 603/598-3400.

Quick Reference Cards For Windows and Mac

GMT Automation, Inc. (Charlestown, Mass.) has announced a series of quick reference cards for DOS, Windows and Macintosh users. Each 8.5 x 11-inch card features a different software program and includes instructions, helpful hints and reminders, printed on both sides.

All cards are printed on sturdy plastic with easy-to-read type and highlighted in a contrasting second color. Cards are available for the following PC programs: Windows 3.0; WordPerfect 5.1; Lotus 1-2-3 Versions 2.2 and 3.1; Word for Windows; Excel 2.2; DOS 4.0; and PageMaker 4.0.

For the Mac: Macintosh Basics; Excel 2; PageMaker 4.0; Microsoft Word 4.0; and Microsoft Works. Cards cost \$6.75 for one card, or as low as \$5-each in quantity.



For a price list, write to GMT Automation, Inc., 7 Harvard Street, Charlestown, MA 02129. Telephone 617/242-9263.

BlueStar Communications Unveils Products Meant To Help Set Corporate Publishing Standards

BlueStar Communications, Inc. (Portsmouth, N.H.) has introduced two products aimed at the growing demand for setting and implementing corporate publishing standards — Custom Font Cartridges and PerfectKeys.

Custom Font Cartridges contain the exact font specifications of a company, including logos, signatures and special fonts or character sets. The cartridges can be upgraded or placed on a modular platform that can take plug-in upgrade cards containing other fonts, logos and signatures.

Using a cartridge or I.C. card-based solution reportedly alleviates the need to download font bit maps or to make

fonts at the screen. Custom Font Cartridges range from \$250-\$900 each, depending on number of cartridges needed, their specification and content.

PerfectKeys is a WordPerfect enhancement program used to set macro standards, style sheets, keyboards and templates in WordPerfect. The software is said to be useful for placing a consistent set of standards in WordPerfect quickly and throughout an entire corporation. PerfectKeys costs \$149 for single users and can be acquired on site-license terms.

BlueStar is at One Middle Street, Portsmouth, NH 03801. Telephone 603/436-1116.

Get Paid Plus and Datasave From Great American

Great American Software, Inc. (Nashua, N.H.) has announced an accounts receivable collections package, as well as a file backup utility, for use with its One-Write Plus Accounting System and Money Matters accounting software for small businesses.

Get Paid Plus is a customer and vendor collection and correspondence software tool said to seamlessly integrate data from One-Write Plus or Money Matters with a series of 200 pre-written letters. The software can also be used as a standalone collection package.

The letters address collection, credit, vendor/customer relations, general business, human resources, sales and marketing. Great American composed the letters with the help of a collection letter specialist and experts from Boston publisher Houghton Mifflin.

Get Paid Plus is also a complete word processor with an over 100,000-word

spell checker that lets users modify letters or write new ones. Get Paid Plus costs \$129.95. Registered users of One-Write Plus or Money Matters can buy it for \$79.95 until August 30.

DataSave automatically backs up files in One-Write Plus, Money Matters and Get Paid Plus. Each time users exit their programs, DataSave prompts them to back up files from the hard disk to the floppy disk by listing the companies worked on since the last backup.

DataSave reportedly lets users select specific companies to back up and then compresses the files an average of 50 percent to require half the number of diskettes as standard backup systems. DataSave costs \$39.95 direct from the company at 615 Amherst Street, Nashua, NH 03063. Telephone 603/889-5400.

Real-Time Color Frame Grabber

Digital Vision, Inc. (Dedham, Mass.) has unveiled ComputerEyes/RT, a real-time color video frame grabber for the IBM PC and compatibles.

Joining the firm's line-up of non-real-time image capture products, the RT board is said to open up such new application areas as multimedia, animations, remote image telecommunicating and industrial machine vision.

ComputerEyes/RT reportedly lets

users capture images from any standard video source (live TV, video camera, VCR), display them directly in VGA, SuperVGA and EGA modes, and save captured images in all popular PC image file formats. The RT features 1/30-second frame grab and 512 x 512 resolution at 24 bits per pixel (16 million colors).

ComputerEyes/RT is \$599.95 from the firm at 270 Bridge Street, Dedham, MA 02026. Phone 617/329-5400.

Wang Introduces i486-Based PC

Wang Laboratories, Inc. (Lowell, Mass.) is among the first vendors to announce a PC based on Intel Corp.'s new 50MHz i486 microprocessor chip. The EC 460/50C, due out in September, is aimed at workgroups in business and government.

The unit incorporates Extended Industry Standard Architecture (EISA) capability and features a 41-MIPS (millions of instructions per second) processor. The EC 460/50C supports the latest versions of MS-DOS, OS/2 and Unix operating systems, as well as Microsoft Windows.

The EC 460/50C is said to be well-suited for standalone PC and PC LAN solutions developed with standards-based tools that can include text, data and image processing, application builders, expert systems and document management.

For example, Wang's OPEN/image

for NetWare enables end users to bring imaging capabilities to client/server applications in a Novell NetWare LAN environment. Typical applications include loan processing, litigation support, claims handling, and correspondence tracking.

The EC 460/50C's i486 microprocessor features on-chip 8K cache memory and integral math/numeric coprocessor, with an external 256K write-back cache.

The unit also has 4MB of RAM, six EISA-compatible expansion slots, a 1.2MB or 1.44MB disk drive and extensive on-

board integration of I/O capabilities, including SuperVGA.

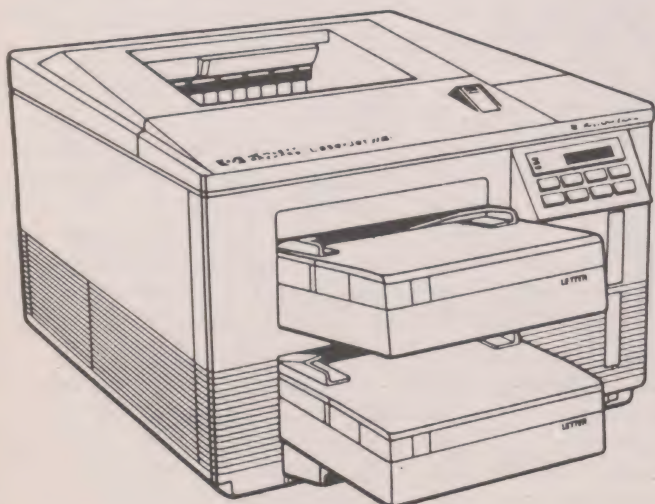
The unit has two serial ports, one parallel port, a mouse port and a keyboard. Base price is \$12,995. Wang is at One Industrial Avenue, Lowell, MA 01851. Telephone 508/459-5000.



Wang Laboratories' EC 460/50C features a 50MHz i486 microprocessor.

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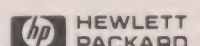
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DEALER SPOTLIGHT

Interviewed by Marguerite Zientara

"Now that people feel there's a real link in the business world between IBM and Apple, you'll see a lot less resistance to people in large corporations buying Macintoshes."

Company Name: Computer Town
Locations: 304 South Broadway, Route 28, Salem, NH 03079.
603/893-8812
421 Amherst Street, Nashua, NH 03060.
603/883-1212
153 Turnpike Road, Route 9, Westboro, MA 01581.
508/898-9900
Hours: Salem, Nashua: M-F, 9-8; Sat., 10-5; Sun., 12-5.
Westboro: M-F, 9-6; Sat., 10-5; Closed Sundays.
Type of Sales: Storefront and direct corporate sales.
Salespeople: Salem, 8; Nashua, 7; Westboro, 4.
Year Started: Salem 1979; Nashua 1985; Westboro 1987.
Owner: Tom Jacobs
Hardware: Apple Macintosh, and Mac peripherals by Hewlett-Packard, Raster Ops, NEC, Microtech, Radius.
Software: Mainly Claris, Microsoft. Also, Personal Training Systems' (San Jose, Calif.) applications software training packages (available for all major Mac applications).
Specialty: Macintosh Superstore with expertise in networking, desktop publishing.
Consulting: Yes.
Training: Yes, for networking customers.
Service Policy: On-site contracts, carry-in at any location.



Computer Town's owner, Tom Jacobs

In the late '70s, Tom Jacobs was a general contractor who, after building houses for five years, sensed it might be a good time for a career change. In the construction game, things were slowing down and interest rates had climbed to 22 percent. Jacobs started "looking for something different to do."

The personal computer industry was still in its infancy, with the IBM PC and the Apple Macintosh yet to come. Even as the construction industry faltered, Jacobs watched the number of computer stores mushroom from a handful to hundreds in just a couple of years.

Jacobs realized he had found what he was looking for. In 1979, he opened Computer Town in Salem, N.H., as an Apple dealership. It turned out to be an excellent decision. "Our first five years in business we grew about 125 percent per year," Jacobs recalls. In 1983, two years after IBM introduced the PC, Computer Town started selling DOS products as well. The Macintosh hit the scene in 1984, and gradually supplanted the Apple II for business users.

Last January, after seven years of selling both Apple and DOS products, Computer Town dropped its DOS lines (IBM, Compaq, NEC, Hyundai) to focus exclusively on the Macintosh, becoming a "Macintosh Superstore."

Has dropping DOS affected sales?

Only in the best possible way. "Our business has doubled since May 1990," Jacobs said last month, citing the elimination of DOS as "a contributing factor."

Computer Currents: What made you decide to drop DOS and focus on the Macintosh exclusively?

Tom Jacobs, Owner: Our customer base in Macintosh was always more pleased [than DOS customers]. The Macintosh is a pretty straightforward line, it's easier to use, and we became a lot more knowledgeable on the Macintosh. When you sell too many products, you're really not knowledgeable in anything.

Everybody in the company uses the technology we sell — for our accounting system, our point-of-sale, and electronic-mail — and I think we portray that knowledge to our customers.

So you've undergone a dramatic change, and it sounds like it's been a good one for you. You could have gone the other way, however, with IBM.

Well, that's right, but the majority of

our business was Apple, anyway. We were about 70-75 percent Apple, so it made a lot of sense for us to just make it 100 percent.

Which Macintosh system is selling the best for you right now?

We're selling the most of the Macintosh LC. It's the lowest-cost color computer that Apple makes. The base unit sells for about \$1,797.

How great is the interest in multimedia?

I think people are still just beginning to understand what it is.

Do you have a multimedia display?

Yes we do. We sell some video products, but it's not a big part of the business.

Do you think it will be someday?

No. I think there's a lot of hype about it, and to me it's more of a specialized type thing. People who want to do a commercial, for example, can interact the VHS with the computer, but how many people are really going to do that?

What do you think of the recently announced IBM-Apple alliance?

I think it's too early to tell. My initial feeling is that it's probably going to help us sell a lot more Macintoshes. Now that people feel there's a real link in the business world between IBM

and Apple, you'll see a lot less resistance to people in large corporations buying Macintoshes. I think it'll help us out.

Do you think it will actually come to pass?

Yes, I think it's a good idea. They're talking about incorporating the Mac operating system into a faster processor, a RISC chip. What happens in our industry is that people keep buying more powerful technology for less money, and there had to be a path to go towards, to make things faster and to access more storage.

Were you surprised when you first heard rumors about the alliance?

No, because that seems to be John Sculley's mode — to connect to everybody.

What would you say differentiates the Computer Town stores from other Macintosh stores?

The exclusivity is number one. We only sell Macintosh; we don't mix it with other brands. Because we exclusively handle the Macintosh, we carry everything there is for it.

We have a very strong networking team that really sets us apart from anybody else I know. We connect the Macintosh to anything — to Wangs, DEC's, IBM's — all kinds of communications.



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I saw an advertisement the other day for a word processing program that runs under Windows 3.0. It accepts graphics, supports up to four columns, can import and automatically update graphs and charts from other applications, and has tags and style sheets. It looks just like PageMaker — I think that was the intention. I think that's too bad.

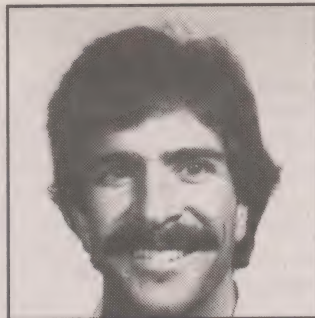
Once upon a time a word processor was judged on how well it processed words — how naive. Today, a word processor is nothing if it can't double as a desktop publishing program. The situation was bad enough before Windows 3.0 came along; now, in the land of 900K executable files and endless memory, software developers have discovered that they can pack damn near every feature they want to into their applications, and worse, they're actually doing it.

Meanwhile, we writers and desktop publishers with the gall to think that word processors are to be used for writing and composing are left out in the cold. I fear that it will be quite some time before I give up my DOS-based word processor. My particular choice of program is actually irrelevant —

they're all faster and more agile than the Windows-based tubs that are passing for word processors today.

I acknowledge the appeal and the value of the all-in-one program for writing and publishing documents. Many users don't need full-fledged desktop publishing capabilities, and

can get by with the purchase of only one program (however expensive it might be) for their writing and their simple publishing. What I cannot accept is that *every* manufacturer thinks that it must come out with this new breed of Swiss-army-knife word programs in order to survive. Even the



By Rick Altman

Windows Word Processors *Current Crop Isn't What DTP'ers Need*

Windows word processors that are marketing themselves as "light" or "lean" are overblown.

Let's set one thing straight right away: calling any of these programs a professional desktop publisher is a sad joke, akin to calling any kid who can throw a curve ball a major league pitcher. They all fall well short in such categories as hyphenation, justification, and kerning. Absent is the flexibility of PageMaker's pasteboard or the precision of its grid, and equally absent is the power of Ventura Publisher's paragraph formatting or its many automation features like auto-numbering, cross-referencing or variable substitution.

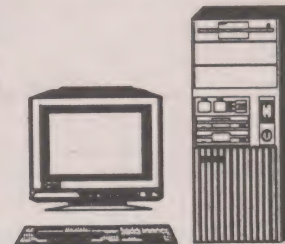
Those of us who turn to PageMaker or Ventura for our publishing needs wouldn't consider using a word processor instead. We use a word processor to prepare the text before bringing it to one of those two programs. And to that end, we have two very simple desires: speed and flexibility. We don't care about importing graphics or wrapping columns, we don't need dynamic links to work sheet graphs. We don't even need fonts — most of us would work in draft mode anyway. Give us a clean screen, good macros, acceptable speed, and a decent price and we'd be your friends for life.

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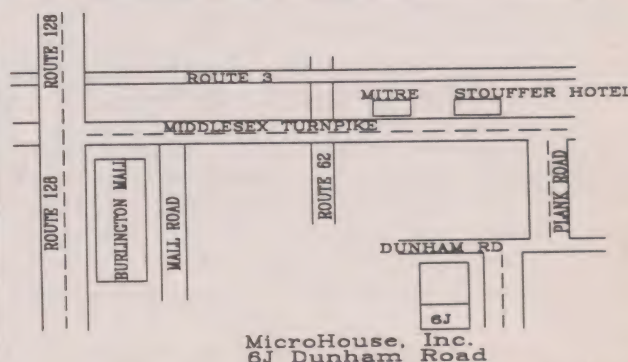
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turer of a Windows-based word processor:

Them: "Hello, I'd like to talk to you about Word-Light, our newest prod—"

Me: "Does it import graphics?"

Them: "Uh, no, it's designed more for th—"

Me: "Does it have glossaries of exotic styles, or the ability to place text inside of boxes?"

Them: "Well, no."

Me: "How about four different viewing modes, with a sophisticated scaling procedure for screen fonts?"

Them: "No, it's not intended for that aud—"

Me: "Can I open up three different documents at once and display them all on the screen at the same time?"

Them: "I'm sorry, it doesn't have any of that. But it does have an excellent search and replace, the best spell-checker you'll see, and great macros."

Me: "That's all?"

Them: "That's all."

Me: "I'll take three of them."

Aside from ignoring the segment of the marketplace that wants a word processor to write and edit, it seems to me that these behemoth word processing programs fly right in the face of what Windows 3.0 is all about. Just because the technology now exists for programs to include the kitchen sink, does that

make it wise to do so? This is the age of data exchange, this is the age where my word processor, desktop publisher, and spreadsheet program can all talk to each other. This is the age where I can pop up one program on top of the other, each ready to perform a specific task, for which it is uniquely qualified. Why would I want one program to try in vain to perform all of these tasks when Windows lets me choose multiple programs, each more qualified to perform the particular task at hand? Frankly, this is the type of programming that I would expect with DOS, where you can only load one program at a time. In the land of multiple windows, it just makes no sense.

WordPerfect for Windows is due out

soon, and I'm not particularly looking forward to it, because I'm afraid that it's just more of the same. In fact, at PC Expo, a WordPerfect representative said as much when I asked him to characterize the program for me. "Well, it's a Windows program," he began, as if that sealed its fate right there. "It's not going to be as fast as character-based WordPerfect, and it's macro language isn't quite as extensive."

Wonderful. Great graphics, pretty-looking screens, pull-down menus — who cares about performance? I know this is the standard rap on Windows, but my objection is not with Windows itself but the developers writing software for it. Windows doesn't have to be slow — I've seen clean, crisp Windows programs that do their jobs and do them quickly. They grasp the essence of the Windows spirit: They are designed to do a small handful of

things, rather than to bring a dizzying airlift of features to the table. I have yet to see that spirit brought to the word processing arena, despite specific marketing campaigns to the contrary.

Consider this, therefore, an open invitation to any manufacturer of a Windows-based word processor: Show me a word processor that remembers its roots. Show me one that would appeal to

the writer and not the publisher. Show me one that is fast and flexible and that doesn't cost a fortune.

Until then, it's back to my character-based word processor, where I will continue to compose my thoughts and not hold my breath.

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Rick Altman has written three books on Windows-based desktop publishing products...all with his non-Windows word processor. He hosts the annual Ventura Publisher Conference in San Jose, CA each fall.

You can reach him on CompuServe (72341,1714) or by mail at 20204 Merritt Drive, Cupertino, CA 95014.

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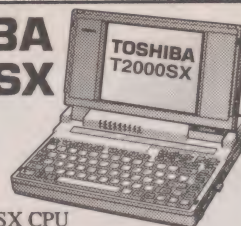
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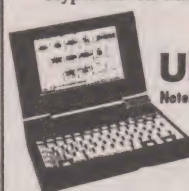
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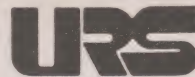


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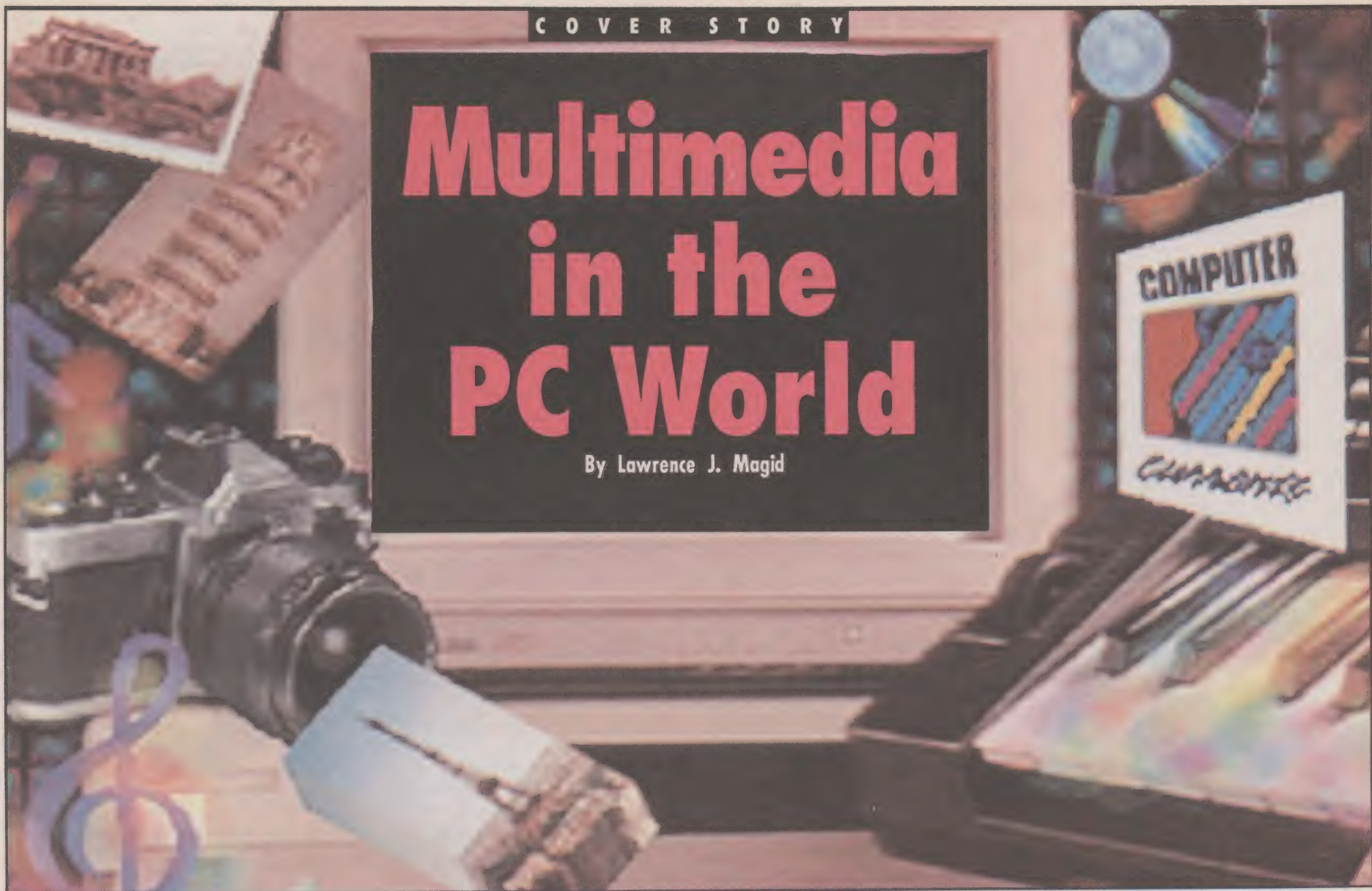
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Multimedia in the PC World

By Lawrence J. Magid



Early buyers of the IBM PC had a choice. If they liked words and numbers, they could get a text-only monochrome display. If they wanted graphics, they would opt for a graphics display that didn't do a particularly good job with graphics but did a terrible job displaying text. If they wanted sound, they could listen through the PC's tinny little speaker. But that was OK, because the PC lacked the circuitry to play anything but beeps and a few non-distinct grunts.

Most of today's PCs come with high-resolution VGA displays. But only a handful produce decent sound. Most software can only generate static images. But all that is about to change "real soon now." Move over TV. Multimedia PCs are around the corner. This summer Microsoft will release a multimedia version of Windows 3.0 and a number of hardware vendors will ship multimedia PCs (MPCs).

The idea of a multimedia PC is hardly new. For years, IBM has been offering high-end systems that allow developers to integrate text, graphics, animation, video and stereo sound. The Commodore Amiga has long been used by video professionals and hobbyists to integrate text and graphics with animation, video and sound (see article on page 26). The Apple Macintosh — from day one — came with the ability to play back rich sounds and display animation. As Tony Reveaux reveals in his article on page 29, color capable

Macs are now endowed with some pretty powerful system software that will allow software developers to include "movies" as a data type in virtually any kind of application.

Apple and Commodore are to be congratulated. But PC owners don't need to feel left out. The PC's open architecture, along with some new industry standards and a host of new hardware and software products, makes it possible for anyone with a 286 or higher PC to upgrade to a multimedia PC.

There are now boards that will allow you to connect your PC to a video source such as a VCR, a videodisc player or a TV tuner. Other boards let the PC play back rich stereo sound and voices. And there are several boards on the market that allow you to connect the PC to a variety of input and output devices ranging from CD-ROM players to professional video editing systems. What's more, many of the

major and minor PC vendors are getting ready to unleash a slew of multimedia machines later this year. Headstart (Great Neck, N.Y.) and Sun Moon Star (San Jose, Calif.) were among the first PC compatible companies to offer machines with built-in CD-ROM players. Tandy (Fort Worth, Tex.) has made a major commitment to multimedia PCs and will begin shipping integrated systems later this summer.

Tandy is a significant player. Partly because of its size and installed base and partly because of its strong presence in the home electronics/entertainment market, Tandy is well poised to help bridge the gap between computers and consumer electronics. The company's new multimedia PCs all come with CD-ROM players. One unit, a \$2,599 16MHz 286-based machine comes with a 40MB hard disk. Another, which costs \$5,499 has a 33MHz 386 and a 105MB hard drive. In addition to the CD-ROM player, both come with a multimedia expansion adapter with audio. VGA monitors are extra. Tandy also plans to offer upgrades this summer that will add CD-ROM and other multimedia resources to existing machines. The kits, which are expected to cost under \$900, will include Microsoft Windows 3.0 with MultiMedia Extensions. Tandy is now offering a CD-ROM player for \$399.

If you already have a PC with the right CPU, a VGA screen and enough

RAM and disk space, you'll be able to upgrade it to a multimedia PC for under \$1,000.

Moving Shades of "Blue"

IBM has been in the multimedia business since 1984 when it introduced StoryBoard — a software package designed to produce slide-show-like presentations on the PC screen. A number of other companies, including WordPerfect, Lotus and Ashton-Tate, make "desktop presentation" programs that allow you to include moving images as part of your PC-based slide show.

Actually, IBM began experimenting with multimedia in 1980 — a year before the company introduced its first PC. Two researchers — one in Denver and one in Atlanta — developed a prototype interactive system that consisted of an IBM 5100 desktop computer, a videotape player and some early touch-screen technology.

The company is now shipping a number of hardware solutions including its \$2,295 M-Motion Adapter that makes it possible to use PS/2 systems to create and display interactive programs that combine full-motion video, audio and still images along with computer-generated text.

The adapter receives analog signals from external video and audio sources, such as a Pioneer LaserDisc player. It then digitizes the signals and sends

them to the monitor. Computer generated text and graphics, coming from the PS/2, can be displayed on top of the video to create a system that makes it possible for the user to interact with and control the video and audio portions of the program.

IBM's multimedia strategy goes far beyond a few add-in products. Peter Blakeney, IBM's multimedia marketing director, describes it as a "cross-platform" strategy, "... spanning the range from PCs to mainframes." IBM has recently introduced new storage devices, including a 2.88MB 3 1/2-inch floppy diskette drive and a \$1,795 128MB read/write optical storage disk designed, in part, as a media for multimedia presentations. The company is also introducing a new 14-inch touchscreen CRT for \$1,695, designed for training and information delivery applications. Big Blue is currently bundling several of its multimedia products into a \$2,870 IBM PS/2 MultiMedia Training Kit designed to upgrade existing PS/2 hardware into multimedia playback systems.

IBM has also provided support for a variety of multimedia presentation programs. The company is subsidizing the work of Cleo Award-winning producer Bob Abel and lots of other talented people to develop multimedia courseware and other material to help show off the PS/2 as a multimedia platform. IBM provided assistance to the National Geographic Society which used IBM's LinkWay authoring software to create a very impressive CD-ROM called Mammals: A Multimedia Encyclopedia.

IBM publishes a MultiMedia Courseware catalog (you can order it by calling 800/344-3115) and maintains a multimedia help line at 800/627-0920.

Sun Moon Star

Sun Moon Star is hardly a leader in the PC field, but the San Jose, Calif. division of the Taiwan-based conglomerate has been an early leader in the field of CD-ROM and multimedia. The company manufactures several CD-ROM-equipped PCs including a 286, 386SX and 25MHz 386DX system. Each comes with a stack of CD discs including Software Toolworks World Atlas, Software Toolworks Illustrated Encyclopedia, Software Toolworks CD Game Pack, Microsoft Small Business Consultant, Microsoft Stat Pack, Microsoft Bookshelf, CD Guide Optical Edition and Hotline II Executive. This collection, admittedly, isn't the most dazzling demonstration of multimedia technology. But it is a good start featuring many useful programs among the bundle.

In addition to IBM and Tandy, the two other big players in PC-based multimedia are Intel (Santa Clara, Calif.) and Microsoft (Redmond, Wash.). That's not a bad place to start. Intel has a virtual monopoly on the CPU used in PC compatibles and Microsoft owns the operating system and Windows — the most popular graphical user envi-

ronment. (First quarter 1991 retail sales of Windows software, according to the Software Publisher's Association, exceeded those of Macintosh programs.)

Intel is heavily invested in Digital Video Interactive technology, which uses compression techniques to make it possible to combine motion video, still pictures, audio, and computer graphics into a single digital integrated environment. Unlike some multimedia systems, DVI relies strictly on digi-

tal data rather than an amalgam of digital and part analog data sources. Intel's current DVI technology achieves a 150 to 1 compression ratio, which reduces the storage and transmission requirements of full-motion video from more than 22MB per second to 150KB per second. That makes it possible to store a one-hour digital movie on a single CD-ROM.

Intel is currently shipping its DVI ActionMedia board. And, according to Intel Senior Vice President David

House, it is now working on a third-generation programmable video processor to be available next year "that will have ten times the power" of its current processors and will be capable of "online real-time compression and decompression" that's compatible with most current standards.

Northern Lights

Microsoft is very serious about
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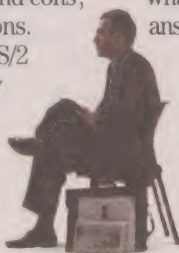
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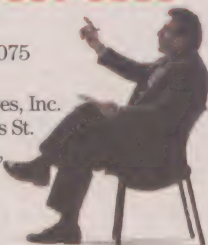
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Wednesday, August 14
9:00-10:00 am

Sheldon Laube
National Director, Information & Technology, Price Waterhouse
"Desktop Directions: How New Desktop Technologies Will Further Empower People"

Lotus Technology Briefing
Wednesday, August 14
1:00-2:00 pm

Dr. Frank King
Senior Vice President, Software Business Group Lotus Development Corp.
"Software Applications for Working Together in the 90s"

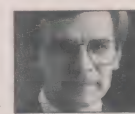


OS/2 Strategy Briefing
Thursday, August 15
8:30-10:15 am

Lee Reiswig
Asst. General Manager, Programming, Personal Systems, IBM
Joe Guglielmi
General Manager, Marketing & Business Development, Personal Systems, IBM
"Personal Systems Software Directions"

Developers' Keynote
Friday, August 16
9:00-10:00 am

Paul Brainerd
President, Aldus Corporation
"Secrets to Building Successful Cross-Platform Applications Software"



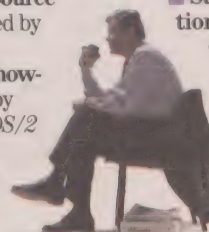
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COVER STORY

FROM PREVIOUS PAGE

bringing multimedia to the PC. The company has been publicly encouraging the use of CD-ROM since 1984 and has been holding major annual CD-ROM conferences since 1986. It has divided the multimedia territory into home, education and business markets, according to Pam Goldschmidt, the company's product manager for its MultiMedia Systems Group. Business productivity applications include multimedia versions of traditional business applications, which might include a talking spreadsheet and database applications with moving video. Training, information and education transcend markets and will wind up in businesses, schools and homes. Creativity and entertainment applications are designed primarily for the home.

Microsoft's current multimedia strategy revolves around what is being called Microsoft Windows 3.0 with MultiMedia Extensions. The product, which is now in final beta testing, will be released later this summer. *Computer Currents* tested a pre-release version of Windows with extensions, which is basically identical to the regular Windows 3.0 except that it has been endowed with the ability to place sound and animated "movies" as well as a Media Control Interface that provides the hooks to connect Windows applications to videodisc players, PC-ready VCRs and other video input sources. With the extensions to Windows, software developers will be free to worry about the innards of their programs and not have to reinvent the drivers to connect to various multimedia hardware devices. In that sense, multimedia devices now have the same status as printers, monitors and other hardware sub-systems.

Microsoft, in conjunction with other vendors, has created the MPC specification which defines a minimum standard necessary for a machine to qualify as a multimedia PC. Those that do qualify will be able to run MultiMedia Windows and Windows-based appli-

cations designed to take advantage of the multimedia hardware platform. The specifications have been endorsed by several system vendors including Tandy, Fujitsu, AT&T, NEC Technologies, Olivetti, Zenith Data Systems and CompuAdd.

The hardware requirements to qualify as a multimedia PC are actually fairly low. The PC needs at least a 10MHz 286 CPU, 2MB of RAM, a 4-bit VGA display, an 8-bit digital-to-analog converter for audio, a 30MB hard disk, a serial port, parallel port, joy stick port and MIDI port and a CD-ROM player.

This minimum standard is just that. It's not necessarily a recommended system. People using their PCs to develop multimedia presentations may need a far more powerful system. But for playing back presentations, a 286 is often quite adequate, according to Tandy Marketing Director Ed Juge, who says Tandy played a major role in urging the acceptance of the 286 as part of the multimedia standard.

In some situations, the PC will serve as a playback media while the actual development takes place on a Mac or some other system. AuthorWare Professional and MacroMind Director (see article on page 29), for example, enable developers to create their presentations on a Macintosh for playback on a PC running MultiMedia Windows. Microsoft will include MacroMind Director's player technology as part of Windows with multimedia extensions. This will allow documents created in MacroMind Director to be played back on PCs running Windows.

Others will elect to use a 386 or higher PC as a development tool using Asymetrix (Bellevue, Wash.) Toolbook, the Windows developers' version of AuthorWare, or any of the other multimedia development programs.

Mixing VGA and Full-Motion Video

Playing back a multimedia program
SEE PAGE 25

Grasping Animation

Long before pundits popularized the term "multimedia," companies were hard at work developing software that made it possible to create self-running animated presentations on the PC screen. One such program, called GRasp (Graphic Animation System for Professionals) comes from Paul Mace Software of Ashland, Oregon.

The newest version, GRasp 4.0, includes enhanced digital sound capabilities as well as a compiler utility to create stand-alone animations. The program can also read Autodesk Animator files.

GRasp is actually a graphics environment and programming language. It provides users with control of the palette, movement timing and user interaction for producing animation. There are tools for screen

fades, text displays, windowing and horizontal kerning. Sound can be recorded and played back via the Sound Blaster card.

It won't turn you into Walt Disney Studios, but it will let you create short full-motion animated presentations that you can distribute via floppy diskette or play at your next sales meeting. It's being used in point-of-sale demonstrations, interactive tutorials and engineering simulations. The new version's integration of sound makes it a potential multimedia tool.

The program costs \$349 and is available from Paul Mace Software, Inc., 400 Williamson Way, Ashland, OR 97520. Phone 503/488-2322. Fax 503/488-1549.

— Larry Magid



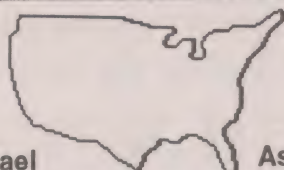
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The online services are a rich source of information on a great many subjects, including multimedia computing. The best online source is MultiMedia Computing Corp's forum on CompuServe (GO MULTIMEDIA). Here experts and novices exchange ideas and suggestions in this emerging field. There are some uploadable multimedia-related utilities for both the PC and Mac and text files with some useful information from the *MultiMedia Computing & Presentations* newsletter.

America Online doesn't have a multimedia forum but it does have the Inside Technology forum hosted by Denise Caruso who is also the *San Francisco Examiner* "Inside Silicon Valley" columnist and editor of a new multimedia newsletter called *Digital Media: A Seybold Report*. Caruso's forum is an excellent way to stay in tune with the multimedia community.

PC Sound Off

All IBM-compatible systems have a built-in speaker but in most cases are unable to produce music or synthesized voices. To be sure, the

speaker is small and often low-quality, but it's not really the culprit. The problem is that most PCs are not endowed with the necessary chips to reproduce decent audio. Unlike Macintosh and Amiga, PCs do not generally come with an onboard digital-to-analog converter (DAC) chip. That's beginning to change. A number of vendors, including Tandy and IBM (PS/1 only) now include audio chips on the motherboard. What's more, there is a growing industry of aftermarket sound board makers including AdLib, Creative Labs (Sound Blaster) and Covox. Even Walt Disney Software is in the act with The Sound Source, a \$34.95 battery-operated speaker that plugs into the PC's parallel port.

Despite the number of products, until very recently there were no industry-wide audio standards, so software written to support one system or aftermarket board wouldn't necessarily work on another. Most of the plug-in boards are compatible with the original AdLib board which is supported by most game programs that use sound. But the original AdLib system did not include speech synthesis so the lowest common denominator has been pretty low.

Microsoft has issued its MPC specifications for sound boards and chips. With these specifications in mind, board makers can now set about the task of creating hardware that will be compatible with the MultiMedia Windows and other MPC-compliant programs.

MediaVision, a Fremont, Calif. company, was one of the first to release an MPC-compatible sound board. The Pro AudioSpectrum board is able to mix several kinds of audio signals from different sources such as compact discs, CD-ROM, tape recordings and sound synthesizers, eliminating the need for a mixer. It can record and playback monaural and stereo and is downward compatible with the AdLib standard, making it suitable for most entertainment programs. The company plans to be a major player in the multimedia market and has just appointed IBM multimedia veteran, Satish K. Gupta, as its vice president of strategic product marketing. Gupta spent 23 years at IBM, having recently served as product manager of IBM's digital video interactive (DVI) products.

Creative Labs will soon release an MPC version of its Sound Blaster board. Sound Blaster, which is already able to

handle digitized speech, has emerged as a second standard for game and entertainment programs. It is AdLib-compatible but offers advantages over the AdLib, including the ability to handle synthesized voice. There are several games — including an upcoming version of best-seller *Leisure Suit Larry* — that take special advantage of Sound Blaster's speech capabilities. As a result, it's an ideal platform for users who want to take advantage of MPC software as well as existing entertainment programs. The Sound Blaster is marketed by Brown-Waugh Publishing, 130-D Knowles Dr., Los Gatos, CA 95030. Phone 800/451-0900 or 408/378-3838. Fax: 408/378-3577.

ATI, which has long been in the VGA board market, has just announced a combination MPC sound board and VGA card. The ATI VGAudio combines a multi-voice music synthesizer with an ATI VGA Wonder video graphics card, providing both SuperVGA resolution (up to 1024 x 768) and MPC sound.

For more on PC sound products, see page 11.

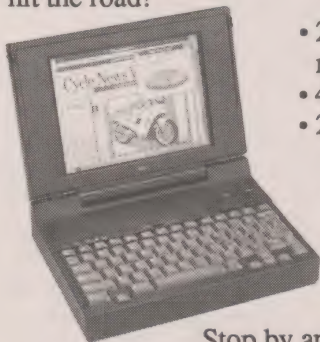
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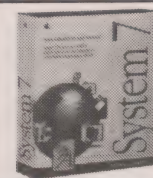


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Compression: Squeezing the Air Out

Compression is a key ingredient to the success of multimedia. The amount of storage and memory required to handle animation, voice and moving video puts an incredible amount of stress on existing resources. Simple multiplication gives you a sense of the scope of the problem. A 24-bit color image consists of 8 bits of red, 8 bits of green and 8 bits of blue for a total of 24 bits for each pixel. To achieve a VGA-quality resolution of 640 x 480 you multiply the numbers (24 x 640 x 480) for a total of 7,372,800 bits for each frame of data. Multiply that by the American TV standard of 30 frames per second (30 x 7,372,800) and you have 221,184,000 bits for each second of video. Divide by 8 to convert that into bytes and you wind up with 27,648,000 bytes — about 26.4MB for each second. Multiply that by 60 and you get 1,582MB per minute. Continue on and you wind up needing 94,922MB (92.7 gigabytes) for each hour of full-motion video. That's an enormous amount of storage space and a ridiculous amount of computer memory. And, if you wanted to transmit this data over a

network, you're looking at a prohibitive amount of bandwidth. Sound insurmountable? It would be if it weren't for compression techniques.

Compression systems are designed to reduce the amount of space and time needed to store, process and transmit data. There are, in general terms, two types of compression. One, called "loss-less," is analogous to squeezing the air out of data. A loss-less compression scheme looks for and eliminates redundancy in the data so that the information can be fully reconstructed and used without any loss of information, quality or clarity. Programs like PKZIP which compress binary and data files are typical examples of loss-less compression.

Another type of compression called "lossy" also eliminates redundancy in data but does so in a way that causes some degradation in the actual information that is conveyed. In many cases, however, that can be done in ways that aren't generally noticeable to the human eye (or ear). Lossy forms of compression, in general, are able to achieve greater levels of reduction than loss-less methods.

There are two predominant meth-

ods for lossy compression. JPEG (which stands for Joint Photographic Experts Group) is ideally suited for still images used in color desktop publishing, image databases, and digital photography. MPEG, which stands for Motion Picture Experts Group, is mainly used for full-motion video.

JPEG is an intraframe compression scheme. It was designed for still images but can also be used with moving images. JPEG compresses each individual frame on a one-by-one basis as if the frames have no relation to each other. To simplify the process, imagine that you have a picture of a woman wearing a red dress. JPEG makes note of the entire area that is red so that it doesn't have to record each red pixel on her dress. JPEG can also be used with moving images but it goes through the compression and decompression process for each individual frame.

MPEG does understand the relationship between frames. Imagine you were compressing an image of a seated person who is talking. The background isn't changing and the color tones of the person and his or her clothing stays the same. What does change are the

motions of the mouth and body. So, once you've compressed information that remains static (like the background or the skin tones) you don't need to recompress it on every frame. MPEG can do about a 200-to-1 compression with little noticeable loss for most pictures. JPEG can do about 20-to-1 with little noticeable loss. MPEG requires more sophisticated technology and, currently, is considerably more expensive than JPEG.

Another way to compress data is to reduce the number of frames per second. Although 30 frames per second (FPS) is a standard for American TV, it's not sacrosanct. You can save a great deal of space and still get very good results by slowing down the number of frames per second. Finally, you can reduce the size of the image. Don't expect too many full-screen moving images. By reducing the amount of screen they take up, you reduce the number of pixels and, therefore, the number of bits required.

— Larry Magid



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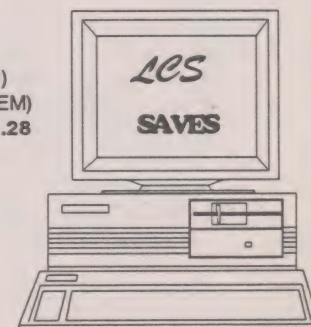
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FROM PAGE 22

from a digital source like a compact disc does not necessarily require any special display technology. Standard VGA is adequate for many presentations although SuperVGA (1024 x 768 pixels) is preferable.

Special hardware is required to play-back video from an analog source such as a VCR, laserdisc player, live camera or TV tuner. Some systems require a TV monitor in addition to a computer screen but other cards can integrate the two types of images onto a single screen. Systems that cost several thousand dollars just a few years ago are now available for under \$1,000. For example, Sunnyvale, Calif.-based Videomail Inc. has recently introduced a \$795 board that allows you to connect a VGA-equipped PC to any standard video source.

The VMC-1 Live Motion Video Controller can display full-motion live video in a window on the VGA screen. It does not require a separate monitor like some video input systems, but comes with a cable that connects it to your regular VGA card. The board comes with both MS-DOS and Windows software. The board, along with a camera, can be used to capture a high-resolution still-frame image. It offers far more flexibility than a standard two-dimensional scanner. An artist working for an advertising agency, for example, could use this board and a camera to capture a three-dimen-



Tandy's new multimedia PCs all come with CD-ROM players.

sional image such as a soda can or an automobile. You can save still images to the PC in a variety of standard formats including Targa-24, TIFF, BMP and PCX. It also supports YUV format which separates luminance (brightness) and chrominance (color) so that the data can be used in image processing or to store true color images.

The board can also be used in conjunction with a PC-ready videodisc

player or VCR to include full-motion video and audio within your multimedia presentations. For example, the board can be used in conjunction with AuthorWare Professional for Windows or Asymetrix Toolbook to create or play back presentations that include video clips. The video itself comes from the videodisc or PC-VCR so it doesn't have to take up space on your PC's disk.

This has enormous implications in training and education. Imagine a program that teaches a mechanic to repair a component. In addition to technical data and documentation, the program could show an actual example using a film clip from a VCR or a videodisc player.

The board has its own video processor and does not rob any CPU resource time from regular PC applications, so there is no slow-down of Windows or other programs that are running while the user displays video or controls video sources. It supports all standard VGA resolutions including 640 x 480 SuperVGA. It accepts any composite video source including VCR, camcorders, video cameras and laserdisc players. It automatically senses whether the incoming signal is the American NTSL standard or the PAL standard used by TV stations in Europe and other parts of the world.

Videomail, Inc. is located at 568-4 Weddell Dr., Sunnyvale, CA 94089. Phone: 408/733-5166. Fax: 408/733-2075.

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Lawrence J. Magid is a nationally syndicated computer columnist and Silicon Valley-based analyst and writer. He also writes regularly on the Prodigy on-line service. He can be contacted at P.O. Box 620477, Woodside, Calif. 94062, or on MCI Mail as LMagid.

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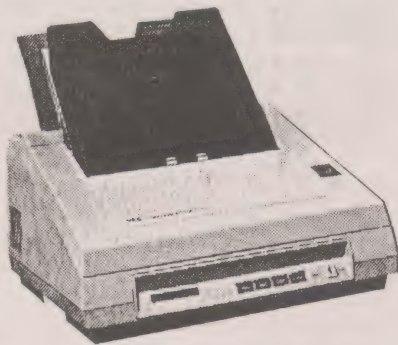
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FEATURE



By Michael Brown

Amiga: A Multimedia Pioneer

When the Amiga was first introduced in 1985, Commodore was criticized for trying to sell the machine into too many markets. While IBM and Apple manufactured very specific machines for very specific markets, Commodore pitched the Amiga as the single computer suitable for such disparate users as artists, business people, musicians, children, and grown-ups. Although Commodore had failed to hang such an effective catch-phrase on it, the Amiga — with its graphics, animation, and video capabilities — was truly the first multimedia computer.

Fast forward to 1991 and we find Apple and IBM pitching computers with graphics, animation, sound, and video capabilities to such disparate users as artists, business people, musicians, children, and grown-ups. Multimedia has become the hottest buzzword in the computer industry since desktop publishing (even though no one can agree on what the term really means). One thing that hasn't changed is that the Amiga still offers the most extensive multimedia capabilities for the money. There are far too many multimedia-related Amiga products to cover all of them here, so I'll briefly describe a few of the most prominent devices and software packages.

Amiga Hardware

The Amiga's success in the graphics and video production markets is due largely to its custom graphics and animation chips, which were designed to be compatible with standard video equipment. These features are built into every Amiga system, from the low-end Amiga 500 (\$799) to the top-of-the-line Amiga 3000 (\$3,499). In its highest resolution mode (640x400), the Amiga can produce 16-color graphics and animations from a palette of 4,096 colors. In low resolution, the Amiga can produce 32-color graphics and animations from a palette of 4,096 colors. A stock Amiga has several other color display modes (including Hold-And-Modify or HAM, which permits 4,096 simultaneous colors), but these display modes typically have restricted resolution and image quality.

The Amiga's video capabilities are augmented by the computer's ability

to produce an interlaced, overscan video display. Overscan describes the ability to render graphics beyond the area which would normally be visible on a video monitor, so that there are no artificial borders surrounding an image when it is displayed on a television screen. Before a computer's video output can be recorded to videotape or displayed on a standard television monitor, it is necessary to encode the computer's RGB video signal to interlaced NTSC. The Amiga can produce an interlaced video signal without external hardware, but an encoder is still required to convert the Amiga's RGB video output to NTSC. Because the Amiga's system clock runs at an even multiple of the clock rate defined in the NTSC standard, such encoders are relatively inexpensive to produce. Amiga genlocks are the most common device used to encode the Amiga's RGB video to NTSC. They can also overlay the Amiga's video output over that of another video source, such as a camera or VCR. Professional Amiga genlocks cost between \$795 (for composite video) and \$1,995 (for SuperVHS/Hi8 video) and are available from several manufacturers.

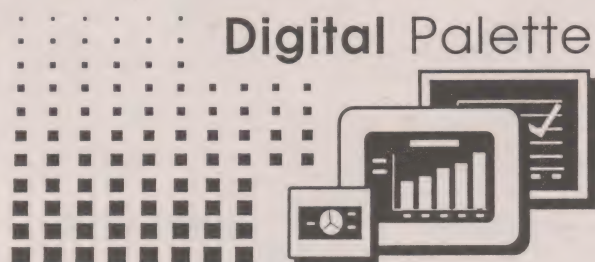
The Video Toaster

A year ago, I wondered if NewTek would ever ship its Video Toaster, or if the product would end up as just another piece of vaporware.

I predicted that if the Toaster shipped with the features and price that NewTek promised, it would change the video production market. Well, it did and it is.

For some users, the most important element of the Video Toaster is its

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seven-channel video switcher. Others have become enthralled with its capability to produce digital video effects, while some extol its virtue as a three-dimensional rendering and animation system, or its digital still-store features, or its 24-bit paint program. The Toaster also features dual 16.8 million color composite video frame buffers, each of which can be loaded in 1/7th of a second. While one buffer is displaying an image, a new image can be loaded into the other.

The Video Toaster does have its limitations. Chief among them is that the device cannot accept video signals with time-base errors. Video material from a VCR, therefore, must first be run through a time-base corrector before the Toaster will accept it. At \$995, the Personal TBC, from Digital Processing Systems, is currently the least expensive solution to this problem. Several other time-base corrector products are under development.

NewTek has announced a licensing agreement with Commodore which allows NewTek to buy Amiga 2000HD's, install Video Toaster boards and software in them, cover the Commodore and Amiga logos with NewTek

Video Toaster labels, and sell the machines as stand-alone Video Toasters. Since these stand-alone Video Toasters are no longer Commodore Amigas, in the strictest sense of the term, NewTek can sell them directly to computer and video dealers who could not or would not otherwise sell and support Amigas. Suggested list price for a stand-alone Video Toaster system is \$3,995.

DCTV

DCTV is a slow-scan digitizer and 24-bit (16.7 million colors) paint program. The device can digitize from a color video camera, a still video camera, or a VCR or laser disc player with high-quality freeze frame. DCTV takes 6-10 seconds to digitize each image, which can then be displayed on a composite video monitor, recorded to a VCR, or stored as a 24-bit graphic file for desktop publishing and other applications. Although DCTV captures images in 16 million colors, it can only display them using several million colors. This is because DCTV's output is composite NTSC, so its color output is limited by the bandwidth of the NTSC standard. Many Video Toaster users have found that they prefer DCTV's paint module over the Toaster's ToasterPaint module and use it to edit Toaster framestore images.

Animation Controllers

The Amiga can produce very high-quality animations in real-time without requiring additional hardware. Add a frame buffer and rendering and animation software and you can produce complex, high-resolution animations with millions of colors. Each frame of the animation, however, must be individually rendered and recorded to videotape using a frame-accurate video-tape editor/recorder, a single-frame controller, and compatible software.

Traditional single-frame controllers are basically special purpose micro-computers that are designed to put the transport mechanism of a frame-accurate VTR under the control of a computer. The Personal SFC,

recently introduced by Nucleus Electronics, is quite different from other single-frame controllers in that it is primarily a software package. With a suggested list price of only \$425, the Personal SFC costs about 75 percent less than a typical single-frame controller.

The current software shipped with the Personal SFC is designed specifically to work with the Video Toaster's

Lightwave 3D software module. The next release of the software will feature support for Digital Creations' DCTV, Impulse's Firecracker frame buffer, and several other devices.

At such a low price point, some limitations are to be expected. The Personal SFC does not read or write SMPTE time code, so the VTR must have an internal SMPTE reader/generator. The product will control only one VTR, but if your only application for a single-frame controller is to render animations to videotape, and your VTR has an internal time code reader/generator, this could be the product for you.

If you have more stringent requirements, you'll want to look at one of the more powerful single-frame controllers, such as VideoMedia's V-LAN, Diaquest's DQ-TACO, or BCD Associates' BCD-5000.

Other Multimedia Software

Deluxe Paint III (\$149) remains the undisputed leader in Amiga paint programs, and it has been reported that Electronic Arts is putting the finishing touches on Deluxe Paint IV. DPaint III melds video paintbox tools with two-dimensional animation capabilities. The DPaint III user creates an animation by painting on multiple frames

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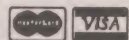
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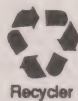
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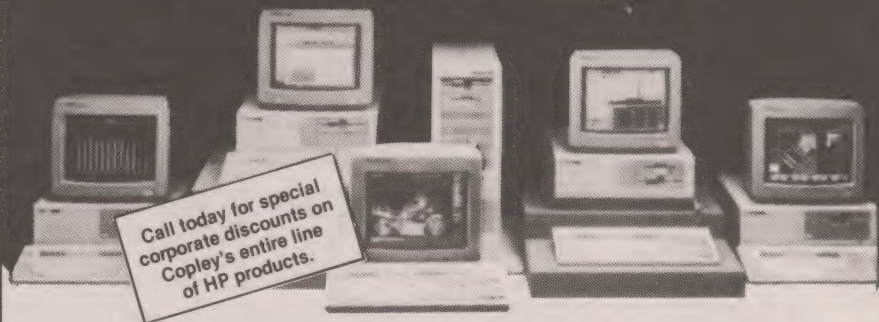
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(with the image in each frame slightly different than the preceding image), and then displaying the individual frames in rapid succession to create the illusion of motion. This method of animation is known as "pageflipping." To simplify the process, the image in one frame can be copied to any other frame and edited. DPaint's animation capabilities are enhanced by its ability to move and rotate a screen image in all three dimensions. DPaint III supports up to 16 colors in high resolution and supports full video overscan. It supports up to 32 distinct colors (plus 32 additional "half-brite" shades of the original palette) in low resolution. Features said to be included in DeluxePaint IV include support for the Amiga's HAM video mode and an "onion skin" mode — similar to that found in Walt Disney's Animation Studio package — whereby multiple animation frames can be seen simultaneously.

AmigaVision

AmigaVision is one of several new software packages that pulls together the Amiga's sound, animation, video, and multitasking capabilities and puts them under the user's control. AmigaVision is basically a programming language that utilizes symbols instead of words to execute instructions. AmigaVision applications are created by pointing and clicking on graphic objects on the screen. Unlike

other programming tools, there is no need for the user to learn a whole new language to create an application. AmigaVision is simple enough for young people to understand and use, yet powerful enough that many professional trainers use it to develop turn-key training systems. AmigaVision is bundled with all professional Amiga systems. It can be purchased separately for \$149.

Sound and Music

A discussion of multimedia would be incomplete without including sound samplers and music programs. There are several sound samplers currently available for the Amiga, including Perfect Sound (\$179, SunRize Industries) and Sound Master, (\$199, Oxxi/Aegis), but they are all relatively low-resolution 8-bit samplers. SunRize Industries has announced and demonstrated new 12-bit (the AD1012) and 16-bit (the AD1016) samplers that will offer CD-quality sound, but these products are still several months from shipping and prices have not yet been announced.

Dr. T's Keyboard Controlled Sequencer (KCS) and Blue Ribbon SoundWorks' Bars & Pipes Professional are two of the most popular Amiga music programs currently available. Dr. T's KCS (\$349) allows the musician to control the program without leaving his or her MIDI synthesizer keyboard. Bars & Pipes Pro-

fessional (\$349) emphasizes ease of use and control through a graphical representation of musical events. Bars & Pipes Professional was used extensively in Atlanta, Georgia's successful bid to host the Summer Olympic Games.

Utilities

Higher-end Macintoshes and IBM PCs have a significant presence in the multimedia market. Choosing an Amiga for a multimedia platform, however, doesn't mean you can't use what these other machines have to offer. There are a number of utility packages that can break down the barrier between these platforms. The Art Department Professional (\$279, ASDG, Inc.), for example, can convert graphics files between several different Amiga, Macintosh, and IBM graphics file formats. CrossDOS (\$39.95, Consultron) enables the Amiga's disk drives to read and write MS-DOS files. MAC-2-DOS (\$99.95, Central Coast Software) allows the Amiga user to read from and write to a Macintosh disk drive connected to the Amiga. Other products allow the user to actually run MS-DOS and Macintosh software on the Amiga.

The Amiga's Weakness

The Amiga's primary weakness is in the area of color graphics. Without adding a frame buffer, the Amiga is limited to displaying 16 colors from a palette of 4,096 in high-resolution mode. Commodore needs to improve the Amiga's display hardware to allow hundreds or thousands of colors in high resolution without exacting a performance penalty on the CPU.

Conclusions

I've barely scratched the surface of the Amiga's capabilities in the multimedia arena. There are dozens of other graphics, animation, video, and music products currently available and many more are currently under development. If you're looking into multimedia, you should definitely look into the Amiga.

AmigaVision, \$149

Amiga 500 Computer, \$799

Amiga 2000HD Computer, \$1,999

Amiga 3000 Computer, \$3,495

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Michael Brown is a freelance writer and consultant. His first book, *Desktop Video Production*, has just been published by Windcrest Books. Write to him at 38202 Aralia Dr., Newark, CA 94560 or through CompuServe (User ID 72567,25).

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Multimedia on the Macintosh 1991

By Tony Reveaux



MacroMind's MediaMaker is a graphically-driven software system for editing, synchronizing and assembling video with graphics, sound and animation.

For many Macintosh users, multimedia is as much of a buzzword today as it was in 1989. By then, manufacturers were shipping enough "multimedia" products for that label be taken seriously. What's different this year? The buzz is still there, but its becoming a voice that's swelling to a chorus. Memory and compression barriers have fallen, Apple's (Cupertino, Calif.) QuickTime has emerged as a time and motion standard, desktop video is becoming more practical, CD-ROMs have won acceptance, there are more software tools to manage multimedia, and publishers are adding new forums for discussion.

MultiWhat??

With its Graphic User Interface and built-in sound capability, the Macintosh has been an early achiever in multimedia product and application development, and is still the platform of choice for a great deal of creative origination. Now IBM and Intel have come forward with a firm, multimillion-dollar commitment to multimedia as a viable market. With Microsoft (Redmond, Wash.), and ten other manufacturers, now under the Software Publishers Association, the MPC Marketers' Council is providing a strong marketing umbrella that provides the MPC (Multimedia PC) logo as an emblem of compatibility for a wide range of MS-DOS and Windows products. When Big Blue moves, you know the train is really leaving the station.

Multimedia is a product, activity or application in which text, graphics, color, sound, animation, and video can

be chosen as modes in different combinations, for passive and interactive connections. But you knew that. Is multimedia also what we used to call "desktop presentations?" Presentations haven't gone away. "Multimedia is being taken a little bit at a time to supplement the previous approaches being used to prepare visuals for the communication of information in some format," said William L. Coggshall, President of Los Altos, Calif.-based New Media Research Inc. "What we're doing is that if it moves or makes noise, we'll consider it a multimedia presentation, and if it doesn't, we'll call it a traditional presentation."

Is multimedia still a technology waiting for a market? "A single market will never arise," said Nick Arnett, President and Chief Analyst of the Multimedia Computing Corp. "But the technology has come to the point at which it can really begin to stimulate rapid growth in training and education, presentations, documentation and scientific/engineering visualizations. That growth will probably hit very high numbers in 1993-94. Sometime toward the end of that period, consumer applications will likely begin to take off."

Cross-Platform Growth

Another trend in multimedia that has emerged more visibly this last year — and it's a healthy trend — is cross-platform compatibilities. Media should

be as "multi" as possible, and that can include creation, delivery and display systems. The functional incompatibilities between Mac, Amiga, PC-DOS and Unix, like the inter-service rivalries of the U.S. military, all have precedents and reasons — but they just get in everybody's way in the workplace. "The industry is notorious for lacking standardization," said Ken Tarolla, producer for Icom Simulations, "and not everyone wants to trust each other to define a standard. So, everyone develops their own standards." As Denise Caruso, *San Francisco Examiner* columnist and editor of *Digital Media* points out; "I don't believe that anyone will be successful with anything that doesn't cross platforms. That's a fundamental problem with Microsoft's multimedia strategy — it has focused on its own operating system to the exclusion of Apple and the consumer electronics people and the workstation vendors."

But there are points of light glimmering at the end of the pipe. MacroMind (San Francisco, Calif.) is releasing its Windows Player this summer. Multimedia documents created with MacroMind Director can be translated into a version that will run (but cannot be altered) under Microsoft Windows. This takes advantage of the richer and more versatile design environment on the Macintosh, extended with the ability to reach the large audiences in the MS-DOS world. As CD-

ROM players have come down in price and disc publishing costs have plummeted, CD-ROMs are now providing a bounty of titles as a delivery medium for multimedia source materials and programs. Artbeats' (San Bernardino, Calif.) Backgrounds for Multimedia disc provides the Mac producer with background screens and sets of buttons and mortices for interactive interface design which are of broadcast quality. More CD-ROMs are cross-platform. The Bureau of Electronic Publishing's (Parsippany, N.J.) New Grolier Electronic Encyclopedia, with its CD-quality audio, includes search engines for IBM, IBM-compatible, and Mac. ImagiTex's (Nashua, N.H.) ImageCELS CD-ROM of patterns, texture maps and photorealistic clip art has formats for Amiga, DOS, Mac and Unix. The latest in presentation display technology is evidenced by Proxima's (San Diego, Calif.) Ovation data and video LCD projection panel (\$9,000). Its projected image rivals 16mm film quality, and the system will work with IBM-PC, PS/2, and Macintosh.

Data Compression and QuickTime

This year has seen a double-barrelled blast against the barriers to the widespread use of multimedia with the introductions of cost-effective and efficient software and hardware-based data compression, and the announcement of Apple's QuickTime, a system-level time and motion manager. QuickTime provides a rapid compression/decompression of data on the fly, relieving the overhead on RAM which has always limited the playing of large multimedia files. Third-party compression boards, like the RasterOps (Santa Clara, Calif.) 24 STV, a 24-bit frame buffer board with live video input, can leverage off of QuickTime to achieve a wide range of applications. Paracomp's (San Francisco, Calif.) QuickPICS is similar in theory and practice to QuickTime. This \$199

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6
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6
SX
PRO**



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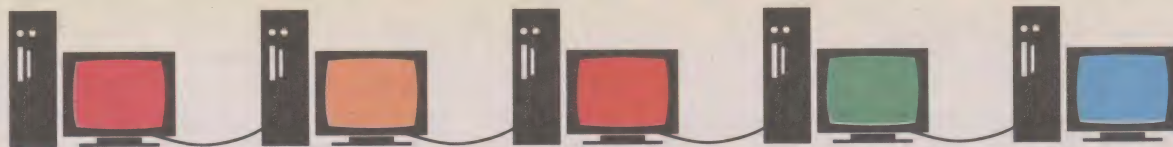
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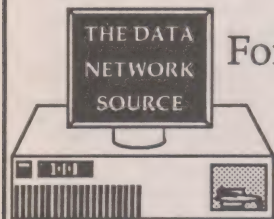
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F E A T U R E

FROM PAGE 29

utility is primarily focused on providing an enhanced playback capability to Paracomp products such as Swivel 3D and ModelShop.

"Apple's QuickTime is probably the most exquisite example of what we want multimedia computing to be," said Denise Caruso. "The ability, on the system level, to manipulate media types the way QuickTime does, is something that I believe will be emulated widely." QuickTime is an open system, and files can be played back on any system that supports it. QuickTime may be a solution to the industry's incompatibility logjams. It will work with a wide variety of compression chips and methods, and will simplify linkages to add-on video boards.

SuperMac (Sunnyvale, Calif.) is one of the first manufacturers to speak QuickTime. SuperMac's VideoSpigot Digital Frame Grabber is a single-slot board that is optimized for the Mac IIx and LC on 12-inch and 13-inch displays. You can capture video and store it as QuickTime movies, to be imbedded in interactive documents or copied to videotape. The VideoSpigot Pro is optimized for the IIx, but will work in other models such as the IIcx, for 8-bit on large screens (19- to 21-inch) and 24-bit on smaller screens. It can display larger QuickTime display areas than the basic Apple system-level QuickTime.

SuperMac's ReelTime QuickTime Movie Construction Set is a nonlinear windowed environment, and is directed primarily to the digital video-in-a-window environment within the computer. It can accept imported files from video, PICT, PICS, SoundEdit and AIFF and can assemble them with A/B roll and transitioning. The digital special effects for transitions are probably the most sophisticated and configurable available for this environment, including rolls and irises. Adobe Photoshop filter modules can be plugged into ReelTime effects. Assembled movies can be copied to NTSC or PAL compatible formats. Programs like MacroMind Director and Authorware are already moving to QuickTime, and by the second quarter of 1992, all of multimedia and most productivity software packages will be released with QuickTime compatibility.

Desktop Video Closer to the Top of the Desk

It's not that desktop video hasn't been around — its just that it hasn't been cheap, convenient to configure,

or very easy to use. The high end of Macintosh video editing systems, like Digital F/X's (Mountain View, Calif.) Video F/X (\$10,000) and Avid Technology's (Burlington, Mass.) Avid system, are too expensive for the average user and not always robust enough for full professional practice in the (other) industry. But the ability to perform non-linear editing and have complete data audit and tracking are only possible with a computer controller, and it is an edge that Hollywood is coming to value. LucasArts' (San Rafael, Calif.) EditDroid system, driven by a Sun workstation, is an example of where post production is going.

If you just want to edit videotape, there are off-the-shelf consumer-level video editing switcher consoles such as Panasonic's (Secaucus, N. J.) WJ-AVE5 (\$1,800). It is a stand-alone microchip-driven video and audio mixer that can synchronize two incoming signals — tape, disk or camera — and can perform a variety of digital effects such as transitions and picture-in-picture. Correctly speaking, this is desktop

video, and with it you can produce linear video documents. But computer controlled, non-linear desktop video goes much further and can be used to produce multimedia. As nifty as the WJ-AVE5 may be, you can't perform random access of your edits, nor can you take advantage of a graphically clear and powerful program like MacroMind

MediaMaker to plan continuity, make decisions and save storyboards. NEC's (Woodale, Ill.) PC-VCR and Panasonic's Selectra AG-1960/RS are multiplatform computer-controlled "smart" S-VHS decks which allow greater precision and flexibility of incoming and outgoing video. They can respond to HyperCard XCMDs and can be used for multimedia presentation as well as production.

Sony's (Park Ridge, N.J.) Vbox is an interface controller module that stands between a video deck and a camcorder, or other Sony-compatible consumer multimedia devices. The Vbox is the first of a product line to use Sony's ViSCA (Video System Control Architecture), designed as a computer-controlled but platform-independent command code for controlling multiple video devices, from within programs such as Farallon's (Emeryville, Calif.) MediaTracks, MacroMind Director and MediaMaker. Aimed at the burgeoning (35-percent market share) 8mm video format, with a \$250 Vbox between each pair of Sony devices, you can "print to video," search and

**As the production
of multimedia is
being
strengthened by
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and video
capabilities,
there has been a
rapid maturity in
software.**

retrieve video segments, and incorporate them into multimedia presentations.

Multimedia Management Software

As the production of multimedia is being strengthened by new hardware and video capabilities, there has been a rapid maturity in software. MacroMind Director 3.0 has been upgraded to take advantage of System 7 and QuickTime. Paracomp's FilmMaker offers an animation alternative which is closer in sophistication to traditional cel animation, and can support a DiaQuest controller for frame-by-frame recording of anima-

tions to tape. MacroMind Three-D is a new three-dimensional animation, rendering and video production tool that can take shapes created in Director or Paracomp's Swivel3D and give them photorealistic rendering and make them move. Paracomp's ModelShop II is extremely quick in creating color 3D animations, and includes a "walkthrough" mode. Paracomp's Magic is an upcoming animation creation and player program that simplifies the process of drawing objects and moving them with sound. Motion Works (Vancouver, Can.) AddMotion is a new program that adds animation and color paint to HyperCard 2.0.

SEE NEXT PAGE

New Publications for Multimedia

One of the surest signs of serious activity and attention for a new technology or market niche is the appearance of newsletters and magazines devoted to news about it. These titles have emerged in the last year or have changed their focus towards multimedia.

NewMedia Age is a 42-page full-color magazine devoted to the rapidly developing industry of multiplatform multimedia computing, products, delivery systems, and industry trends. It provides analyses, project profiles, special reports, product reviews, and columns. Ben Calica is the editor, and David Bunnell is the president and CEO. Subscriptions are \$24 a year and can be obtained by contacting Hypermedia Communications, Inc., 901 Mariner's Island Blvd., Suite 2365, San Mateo, CA 94404, or calling 415/573-5170. The fax number is 415/573-5131.

Denise Caruso is the founding editor of **Digital Media: A Seybold Report**, a new newsletter devoted to analyzing issues and trends across new information industries such as consumer electronics, video/film, audio, telecommunications, publishing, and computers. Each issue will include news, calendars, op-ed, technology primers, show coverage, and product analysis. Annual subscriptions are \$295 from Seybold Publications, Box 644, Media, PA 19063, 215/565-2480 fax: 215/565-4659.

Multi-Media Computing & Presentations is a 12-page monthly report which covers developments in personal computer hardware and software for handling the elements of multimedia presentations, such as graphics, video, animation, sound, and music. The newsletter is targeted at PC developers, film and video producers, and media professionals. Tim Bjarin is the publisher and Nick Arnett is the editor and associate publisher. Annual subscriptions are \$349 from Multimedia Computing Corp., 3501 Ryder St., Santa Clara, CA 95051, 408/737-7575 fax: 408/739-8019.

Mind Over Media is a twice-monthly 32-page newsletter for the communications professional that

focuses on the needs of the growing community of audiovisual and computer professionals for multimedia information. It covers multimedia platforms, software, tips and techniques, and marketing and development case studies. Produced by Multimedia Computing Corp., Nick Arnett is the editor-in-chief, and subscriptions are \$175. Contact them at 3501 Ryder St., Santa Clara, CA 95051, 408/737-7575 fax: 408/739-8019.

Media Letter is a monthly 12-page newsletter which is devoted to covering emerging activities in interactive media technology for business, education, and entertainment. It provides news, columns and op-ed about multimedia technology and issues. Marty Perlmutter is the editor and subscriptions are \$395 from Media Letter, P.O. Box 142075, Coral Gables, FL 33114, 305/859-7511 fax: 305/443-2948.

The Desktop Presentations Report and **The Desktop Multimedia Report** have been combined into one 32-page monthly newsletter entitled **New Media Products**, which is organized into ten product-oriented categories. It covers op-ed, computing platforms, software, hardware, video, and vendor profiles. William L. Cogshall is the editor and publisher, and subscriptions are \$250 a year from New Media Research Inc., 330 Distel Circle, Suite 150, Los Altos, CA 94022, 415/968-4105 fax: 415/968-3181.

Editors Tony Bove and Cheryl Rhodes have changed their **Desktop Publishing** newsletter to the 12-page **Bove & Rhodes Inside Report On Desktop Publishing and Multimedia**. It has expanded to cover news and analyses of industry trends in multimedia and product reviews of the field. Subscriptions are \$195 a year from Bove & Rhodes, P.O. Box 1289, Gualala, CA 95445. Bove & Rhodes have also launched their **MacroMind Developer Letter**, a forum for multimedia developers and users of MacroMind programs.

— Tony Reveaux

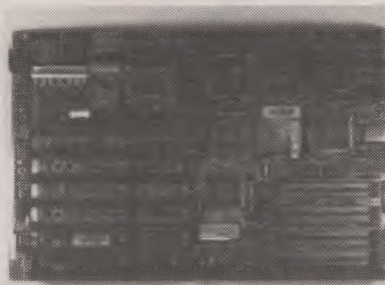


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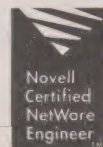
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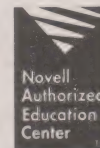
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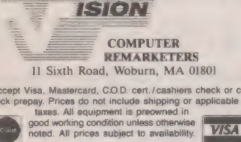
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FROM PREVIOUS PAGE

MacroMind's MediaMaker is a graphically-driven software system for editing, synchronizing and assembling video with graphics, sound and animation. It acts like a choreographer for a variety of external sources and devices, with the output goal being finished videotape. Truevision (Indeanapolis, Ind.), which has been recently acquired by Sunnyvale, Calif.-based RasterOps, has released VideoScript, an assembly program for composing video presentations using the Truevision Nu Vista+ videographics card. VideoScript leverages off the professional powers of this high-end board, which can perform 28 transitions, manipulate live video and combine it with computer graphics with overlay. DIVA's (Cambridge, Mass.) VideoShop is due to ship when QuickTime does, and — with a video digitizing card to access and output data — will allow you to record, catalog, sequence and play QuickTime movies.

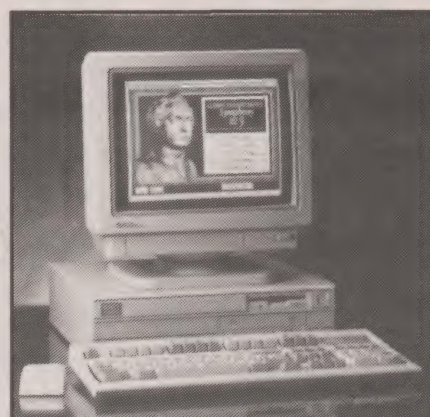
What is multimedia? Ask that question and you may find that the person

is too busy creating an animated corporate logo, editing a storyboard, or preparing a presentation to answer you. Multimedia is much more diverse than desktop publishing, but the same gradual process of concept emergence, application histories, service bureau adoption, product positioning and consumer acceptance is happening in the 90s. By the 2020s, multimedia will have melted into everyday functions — teleconferencing, corporate communications, interactive entertainment — to such a degree that you won't be conscious of it being "multimedia" any more than you are thinking "satellite telecommunications" when you pick up the phone to call your supplier in Cork or Taiwan today.

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Tony Reveaux is a San Francisco-based writer and consultant, the editor of Computer Publicity News newsletter, and a contributing editor for Artweek. He can be reached through MCI mail: 290-3008, The Well (luna), or land lines at 415/648-5958.

GRiD Introduces Two New Multimedia Platforms And a Multimedia Upgrade Kit



GRiD Systems Corp. has introduced the GRiD MMP433e and GRiD MMP320s, two fully-configured, industry-standard multimedia platforms that will carry the MPC (Multimedia PC) trademark.

The GRiD MMP433e utilizes a 33MHz, Intel 80486 microprocessor and an Extended Industry Standard Architecture (EISA) bus and is designed to serve as a high-end multimedia development or delivery platform. The GRiD MMP320s is based on a 386SX microprocessor running at 20MHz.

Jim Roberts, GRiD's director of desktop marketing, said that multimedia applications will radically reshape the way people use computers "because multimedia brings together today's different information sources. GRiD's new products will integrate the high quality of CD sound, full-motion video, graphics and animation, with the computing power of a full-featured PC to create an incredibly powerful information tool."

According to the company, a key component for both new products is the

Tandy CDR-1000 CD-ROM drive, which is able to transfer data to the computer at a continuous rate of 150KB per second. Ensuring a high transfer rate is essential for multimedia graphics and high-fidelity stereo audio output. Additionally, the CDR-1000 used on the MMP433e and MMP330s incorporates a simplified disc tray assembly like those utilized in many stereo CD players. This tray assembly allows for quick insertion and removal of CD-ROM discs while simultaneously enhancing reliability by ensuring that the discs are protected, the company said.

The GRiD MMP433e comes standard with a 33MHz 486 microprocessor, an EISA bus, 8MB RAM, a 105MB IDE SmartDrive hard drive, a SuperVGA graphics adapter with support of up to 256 colors, a CDR-1000 CD-ROM drive, and a multimedia expansion adapter with audio circuitry and CDR-1000 interface.

The GRiD MMP320s comes standard with a 20MHz 386SX microprocessor, 2MB of RAM, a 52MB IDE SmartDrive, a SuperVGA graphics adapter supporting up to 256 colors, a CD-ROM drive, a multimedia expansion adapter with audio circuitry and CDR-1000 interface, one 3 1/2-inch 1.44MB floppy disk drive, 512KB of video memory for VGA Plus graphics (640 x 480 resolution with up to 256 colors), and a PS/2-style mouse.

The MMP433e is priced at \$6,499 in its standard configuration and will be available in quantity this summer. Priced at \$2,999 in its standard configuration, the MMP320s will also be available this summer.

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The new MS-DOS 5.0 provides a lot of new features, but there is still a market for "utility" programs that make computing easier and safer. The two leading DOS utility publishers, Symantec's Peter Norton Group and Central Point Software, have just released new versions of their popular programs.

Both Central Point's PC Tools Version 7.0 and Peter Norton's Norton Utilities 6.0 are easy to use. The hard part is deciding which one to buy. Both are compatible with DOS 5.0 and both have a lot of features in common.

The difference between the two products comes not so much in the basic core but the extras that are thrown in for good measure. The two companies have different philosophies when it comes to "extras." Central Point likes to throw in as many applications as possible, according to founder and CEO Mike Brown. Norton's strategy, according to General Manager Rod Turner, is to provide tools that are tightly integrated. "Some of our corporate customers," says Turner, "specifically don't want us to include extra application programs that might conflict with programs that have already been adopted as corporate standards."

Disk utility programs serve as health maintenance and first-aid stations for your PC's disks. They help prevent accidental loss of data and improve performance by reducing the amount of time it takes for your PC to access data from its hard disk. But the utilities don't stop at protecting

your data. Norton Utilities and PC Tools each offer an entire set of programs with lots of features and options. Norton now has an alternative version of the DOS command line. PC Tools comes with a slew of application programs including communications software, a database and software that lets you control a remote computer.

Utility software is one of the fastest growing segments of the PC software business. International Data Corporation estimates the market at about \$350 million a year with a 13% annual growth rate. Norton and Central Point are the clear leaders in this arena, and are highly competitive in

their efforts to beat the others' features.

New Norton Features

Norton now comes with NDOS which adds many powerful new features and commands to DOS's familiar command-line interface (see sidebar on page 37). Norton has been modified so that it works safely with DOS 5.0's Task Switcher. Task Switcher, which allows you to have more than one program loaded into memory at a time, creates extra challenges for any program that can rearrange data on the disk while other programs are in memory. The new utilities have built-in protection to



By Lawrence J. Magid

Battle of The DOS Utilities

New Versions of Norton & PC Tools

prevent potential problems with Task Switcher or other multitasking or task switching environments including Windows 3.0 and DesqView.

The utilities are also designed to take advantage of the DOS 5.0's deletion tracking and format recovery programs ("undelete" and "unformat") to provide an extra measure of security in the event of an accidental loss of data.

The new version of Norton also takes advantage of DOS 5.0's "LOADHI" feature by automatically loading memory-resident components outside of conventional (bottom 640K) memory when possible. Norton's System Information program now reports on expanded and extended memory usage.

PC Tools' New Features

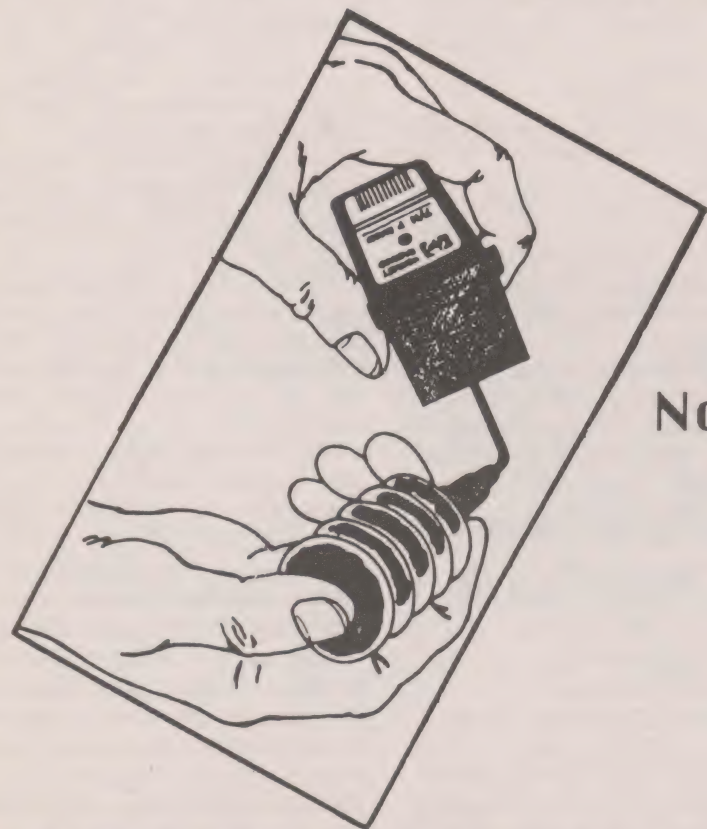
PC Tools Version 7, which was designed to fully exploit DOS 5.0, adds virus detection, remote computing, enhanced data recovery, an application menu system and better integration with Windows 3.0. Most modules of the program don't require Windows, but the collection now features a Windows-like interface as well as several modules that do run as Windows applications. Like Norton, the program takes advantage of the deletion tracking built into DOS. Microsoft licensed its deletion tracking, undelete and unformat software from Central Point.

Common Features

At their core, the programs have a lot in common. Both new versions are designed to be compatible with the new DOS 5.0

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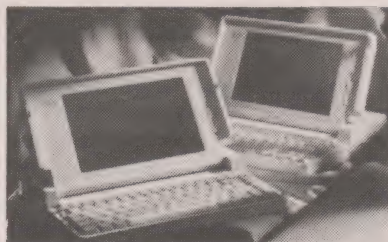
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shell and with Microsoft Windows. For example, each is now able to sense whether other software is running in the background. If so, they avoid performing tasks that could interfere with that software or corrupt data being used by such programs.

Both Norton Utilities 6.0 and PC Tools 7.0 have features that can undelete erased files and restore disks that were accidentally reformatted. Similar features are included in the DOS 5.0 package, but these utility programs offer stronger protection than the undelete and unformat programs that come with DOS. Both programs are now designed to use the deletion tracking feature built into DOS 5.0.

Norton Utilities comes with a feature called "erase protect" that intercepts commands that would ordinarily delete a file. Instead it moves the file into a hidden directory named "TrashCan." You can specify the size of the TrashCan and how long (in days) to keep old files. Installing this erase protection is very strong insurance. The feature, according to the company, can reclaim protected files with "100 percent reliability." PC Tools has a similar function called "Delete Sentry" which the company says provides "complete protection against accidental deletion."

Speed Up Disk Access

Both sets of utilities have several features designed to speed up access to your hard disk. Left to its own devices, DOS stuffs pieces of your files in various places around your disk. PC Tools' and Norton Utilities' disk optimization programs "defragment" the files by bringing them together so that each file is a contiguous block of data. In so doing, it minimizes the necessary travel for the drive's read/write heads, therefore speeding up disk access. When DOS stores a file on a brand new disk, it stores it in a contiguous area of the disk. As the disk starts to fill up, DOS starts placing pieces of the data in non-contiguous areas of the disk.

Low-Level Formatting

Norton and PC Tools can also adjust the interleave factor on some types of hard disks. That can have a dramatic impact on performance by better coordinating the movement of the disk's read/write head so that it's more in sync with the rotation of the disk itself. The process involves performing what's called a "non-destructive low-level format" on your disk. That process makes sure that the interleave factor is properly set for your particular system. The interleave factor helps determine the order in which sectors are read. Sometimes it's best to read sectors sequentially and sometimes it's best to skip one or more sectors. A low-level format program deter-

mines the optimum interleave factor and encodes that on to the disk. Not all disk drives, however, can benefit from low-level formatting. The interleave factor for IDE drives, for example, are set at the factory and cannot be changed by the user. All disks, however, can benefit from defragmentation software.

The programs also come with a disk cache program that further speeds access by locating recently used data into random access memory, which is much faster than the disk. When the CPU needs access to the data, it first looks to the cache before it goes to the disk. The cache programs in both Norton and PC Tools are faster than the one that comes with DOS 5.0. Both caches are designed to work with Windows and be compatible with that company's other disk utility programs.

Both programs can diagnose and repair damaged disks and files. The Norton Disk Doctor automatically diagnoses and repairs damaged disks. It runs tests to determine the integrity of various parts of a disk. When it finds a problem, it can tell you about it or fix it automatically.

PC Tools' "Disk Fix" does the same thing. It repairs most common disk problems, scans the disk surface for defects and damaged data, and recovers data.

Both programs have an "Advise Menu" to help users learn about common disk problems and DOS error messages. The Norton advise menu now includes error messages from WordPerfect, Lotus 1-2-3 and dBase III and IV. Norton has a search command that allows you to quickly locate information about an error message.

PC Tools Has Lots of Extras

PC Tools has a couple of modules that run under Microsoft Windows as well as some application programs which may or may not be useful, depending on your needs and your existing software collection.

Backing Up

PC Tools comes with two backup programs. One works under DOS, the other under Windows. Both the DOS and Windows programs are file- and keystroke-compatible, which is a very good idea for organizations that mix DOS and Windows as well as individual DOS users who think they may later move to Windows.

PC Tools also comes with a Windows program launcher and Windows Undelete program. Norton 6.0 is designed to work safely with Windows and has a "Windows-like" interface, but it does not have any modules that run under Windows. Norton has just announced a \$149 set of utilities specifically for Windows.

PC Tools' Application programs include a dBase-compatible database, four calcula-

NEW NORTON PRODUCT DOES WINDOWS

Symantec's Peter Norton Computing Group just announced a new separate set of Windows utilities called The Norton Desktop for Windows. This set of programs, which costs \$149, is billed as "the complete Windows File Management and Utilities Solution." It is built around a single Windows desktop that's a very nice alternative to the Windows' Program Manager and File Manager. Unlike most alternative Windows shells, it gives you the same icons as the Program Manager in addition to a lot of other features. It also includes a Win-

dows backup program and Windows versions of the most popular Norton Utilities including Disk Doctor and SmartErase. It has a "SuperFind" search facility that can locate files on multiple drives based on any text in the file or any part of the file name. An icon editor allows you to modify existing icons or create new ones. There is a screen-saver with 10 optional displays, a "document shredder" to completely destroy sensitive data and a "batch builder" which allows you to automate tasks and build your own menus and dialog boxes.

USER OUTLOOK

tors, a notepad or mini-word processor, an appointment scheduler, an outliner and a macro editor. If you have a fax-modem, you can use PC Tools to create and send a fax. PC Tools also comes with a program to back up your hard disk and another that lets you control a remote PC connected by phone or a serial cable.

There is a telecommunications module that allows you to connect to MCI mail and any other online and information services that don't require special software.

Choosing between Norton and PC Tools can be difficult. I don't have any hard and fast rules. Both programs do an excellent job at the basic tasks and they have a lot in common. If you already own an earlier version of one program, you'll do well to stay where you are and just upgrade. Norton Speed Disk and Disk Doctor are faster than PC Tools and the interface is a little more consistent. PC Tools offers some very useful application programs but only if you need them and don't already own programs that do the same thing. Norton's NDOS is a significant enhancement over the DOS prompt. I recommend it for anyone who spends a lot of time working at the command line. People who work mostly in

Windows or one of the shell programs will get little or no benefit from NDOS.

The Norton Utilities 6.0 has a suggested retail price of \$179. Many dealers are now offering Norton Utilities 6.0 for \$99 when purchased at the same time as Microsoft's DOS 5.0 upgrade kit.

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Lawrence J. Magid is a nationally syndicated computer columnist and analyst. He can be contacted at P.O. Box 620477, Woodside, Calif. 94062, or on MCI Mail as LMagid.

NORTON'S NDOS

Norton doesn't come with all those extra application programs. But it does come with NDOS — an enhancement to DOS's command line interface. NDOS can be run as a memory-resident program or it can replace DOS's Command.Com as the "command processor" that is loaded when you start the machine. A command processor takes care of prompts, interprets commands and executes programs and batch files. It's what generates that ubiquitous "C" prompt and controls the DIR command, the way you copy files and other basic aspects of interacting with the PC.

NDOS is compatible with DOS 2.1 and above. I tested it with DOS 3.3, 4.01 and 5.0.

Loading NDOS as a replacement to Command.Com saves about 4K of memory over loading NDOS on top of Command.Com. If it is loaded on top of Command.Com you can revert to Command.Com at any time by typing Exit.

NDOS is technically a "DOS shell" but unlike other shells, it doesn't use pull-down menus, graphics or anything else to hide the DOS command line. What you see looks virtually identical to what you normally see when you boot DOS, plus about 40 features that Command.Com doesn't offer.

One of the most useful features of NDOS is the ability to add up to 40-character descriptions to your files. The description is displayed by the DIR command and it stays with the file.

Another feature, command history, allows you to view, modify and re-execute previous commands. This is similar to Doskey, which comes with DOS 5.0. You can also edit at the command line, including insert and delete.

NDOS offers more flexible wildcards. You could, for example, find each file that has the letter "S" anywhere in its name by typing "DIR *S*."

You can have multiple commands on a single line by separating them with a caret (^).

Norton's Batch Enhancer (also included as a separate program) is built into NDOS. The enhancer is fully compatible with Command.Com's batch files but has several additional commands including "Ask" which prompts the user for a response to a question, allowing you to create interactive batch files that support conditional branching.

Aliases are another important NDOS feature. Aliases can be used to execute a series of commands with a minimum of keystrokes. They can be used to rename internal commands or as memory-resident batch files that run much faster and take up less disk space than regular batch files.

NDOS allows you to create your own executable extensions so that you can type in the name of a data file and have it automatically run the required software. For example, it assigns the extension .WPS to its word processing files. You could issue the NDOS command:

"SET.WPS=WORKS\WORKS.EXE" and, from then on, you could type in the name of a Works data file and have it load both Works and itself.

The "Keystack" feature allows you to have an alias or batch file automatically type keystrokes into an application program when the program starts. Keystack can store up to 255 characters which, in most cases, is enough to have a program start, perform a task and then quit. It could be used to fully automate database reports and other tasks.

Finally, NDOS offers a much better online help system than DOS 5.0. The help system, which allows you to use a mouse to select information, covers NDOS commands as well as regular DOS commands.

— Lawrence J. Magid

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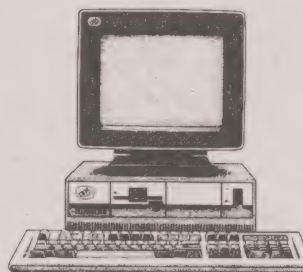
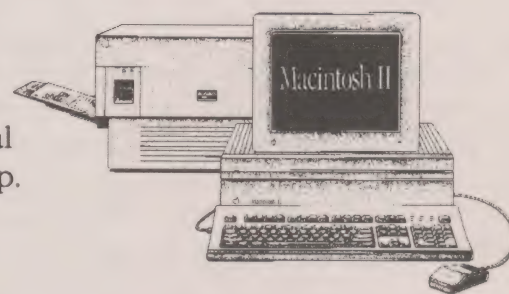
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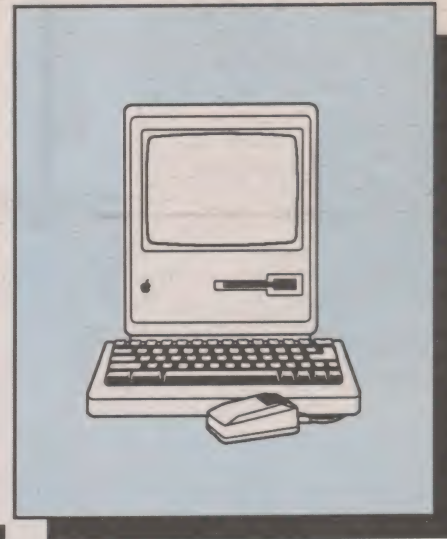
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News, Reviews, and Features for Macintosh Users



MAC PURIST



By Tony Bové

Trouble Ahead, Trouble Behind: Wrestling With System 7

System 7 has arrived. Mac advocates can recite the litany of System 7 features: an improved Finder, "alias" icons that represent real files stored elsewhere, 32-bit addressing (to extend physical RAM beyond eight megabytes), virtual memory (to use part of the hard disk to extend physical RAM), transparent file sharing across a network (say goodbye to TOPS), AppleEvents and Publish/Subscribe (so that applications can communicate with other applications—sort of a "party line" for data), the Data Access Language (for using natural language queries to get information from databases), and support for TrueType fonts. The features are great, but with the exception of the Finder and alias icons, you can't use them yet.

Many applications need to be revised to take advantage of the new features, which means you have to spend money on upgrades and put effort into learning installation details and installing various programs. It turns out that the transition to System 7 is not a trivial exercise in upgrading, and procrastination may be the best choice if you wish to remain productive with certain applications.

While testing a beta version of System 7 for several months, treating the system and several new applications gently, I was impressed. Now, faced with a seven-page compatibility report that tells me to abandon some of my favorite programs for a few months, I feel less enthusiastic.

Specifically, the switch to System 7 will cost me my ability to 1) search

for text in files with On Technology's On Location, 2) play accelerated MacroMind Director movies, 3) format Microtech Syquest removable cartridge disks, and 4) transfer files to and from my Z88 (also known as the MacLite) notebook computer. In addition, to take advantage of the features of System 7, I will have to upgrade more than 75 percent of all the programs I use, at a considerable cost.

Even more perplexing are the responses from some of the vendors of programs that were incompatible or needed upgrading. Many have no plans for upgrading, at least none they can tell their customers. Remember, System 7 was over a year late. During that time, couldn't the developers have been given stable software so that

SEE PAGE 40

UPDATE

RasterOps Cuts Price of Mac 24-Bit Color Video

Following the company's recent deal with Sony to produce a 24-bit color and video display adapter for Sony's NEWS workstation, RasterOps (Santa Clara, Calif.) has now reduced the price of its popular Video ColorBoard 364 to \$999 from \$1,295 for Apple Macintosh systems.

"By lowering the entry point to 24-bit color and integrated video," said Amanda North, vice president of marketing for RasterOps, "we hope to make it possible for everyone who wants these features at their fingertips to have them. At this aggressive pricing, we expect to see the use of desktop video grow rapidly."

According to RasterOps, the 364 is a single NuBus slot board which integrates full-motion video in 24-bit color from any NTSC source, such as a laser disk, and displays it in real-time on

any Apple 13-inch or compatible monitor.

The company has a U.S. patent application pending relating to live video capture without overlay memory. Recently, the Patent Office indicated the allowability of several important claims, directed at a scan conversion method and apparatus.

RasterOps is also in the process of acquiring Truevision Inc., a similar company that manufactures video products for the IBM and compatible market. RasterOps produces products mainly for the Macintosh platform. The deal should be completed sometime in August following the issuance of 2.8 million shares of RasterOps common stock in exchange for all existing Truevision capital stock.

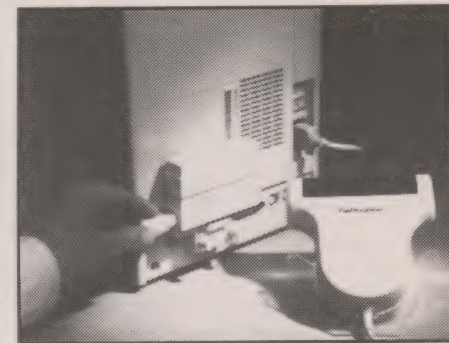
— Ian Stokell, Newsbytes

Compact, Portable Scanner

Thunderware (Orinda, Calif.) has introduced LightningScan Compact, what it calls the first portable scanner for the Macintosh. By connecting to the disk drive port, LightningScan Compact eliminates the need for a power supply and stand-alone controller, the company says.

"Our unique design makes LightningScan Compact the easiest scanner to install and use. Other handheld scanners connect to the SCSI bus and require a stand-alone controller and power supply," said Brian Smith, marketing vice-president. "LightningScan Compact connects to the SuperDrive disk port, so users don't need to worry about SCSI addressing and termination."

The LightningScan Compact interface weighs about five ounces and is slightly larger than a deck of cards. SnapGuide, a scanning guide which prevents side-to-side motion, is included to make straight scanning easy.



LightningScan Compact scans images up to 4.2-inches wide and has settings for 100, 200, 300 and 400 dots per inch.

LightningScan Compact, which retails for \$359, comes complete with ThunderWorks image editing software and a desk accessory for quick scanning from within any application. ThunderWorks can convert a dithered image to 37 levels of true gray.

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That's a full \$1000 less than Apple's \$2599 Personal LaserWriter® NT. But that doesn't mean the BLP Elite has less to offer. In fact, the BLP Elite is packed with more features you want, like true Adobe® PostScript and built-in AppleTalk® for sharing over a network. There's also edge-to-edge printing for super-sized spreadsheets and banners, and a straight-through paper path for printing wrinkle-free envelopes and labels.

The new BLP Elite is a faster printer, too.

In fact, with its 16.67 MHz processor, it's one of the fastest 4 ppm (page-per-minute) PostScript printers you can buy. About 40% faster than Apple's Personal LaserWriter NT.

But what makes the BLP Elite a more sophisticated, more affordable printing machine is its breakthrough technology, engineered at GCC.

At the heart of the BLP Elite is the most compact, cost-effective PostScript controller board ever designed – half the size of the Apple Personal NT's, with one-third the number of chips.

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The new BLP Elite PostScript printer is available from your Authorized GCC Dealer or directly from GCC. Call 800-422-7777 for the name of the dealer nearest you or to place your order directly with us. Either way, you'll find it's painless to go lean and mean with the new BLP Elite.



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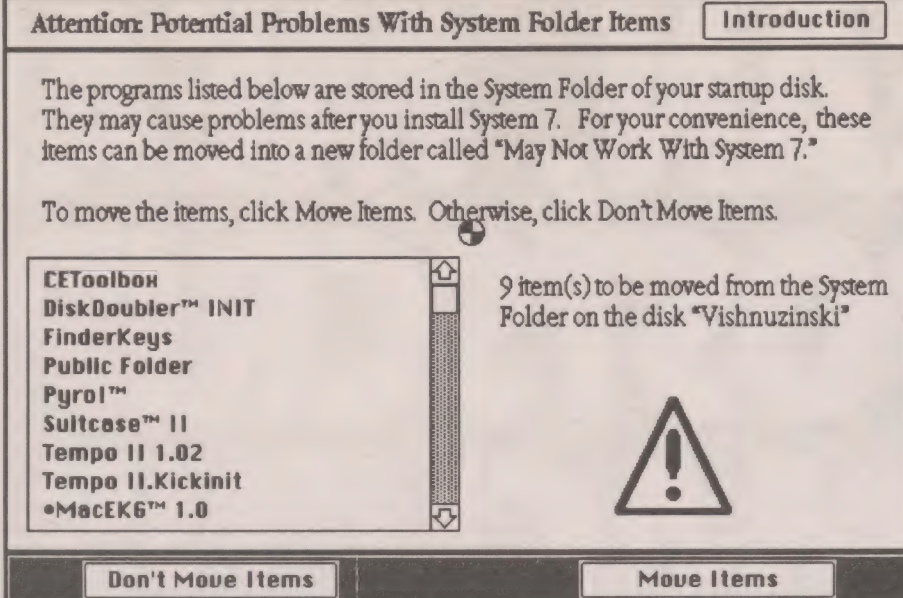
upgrades would be ready?

So I confess, I am procrastinating on the System 7 installation for my working Mac (I've installed it only on a test Mac for now). I know I'll be in trouble eventually if I stay with System 6.07 as new programs become available that require System 7. But all I can see is trouble ahead, especially for those who have only one Mac: no way to use important programs for several months, and no time to shake out the inevitable bugs that come with any new version of the System.

The Compatibility Checker

Of course, thank goodness Apple provides such a thing as a compatibility checker to check your system before installing System 7. At least Apple didn't follow the same routine as Microsoft when the latter introduced Windows 3: nearly every Windows 2 program had to be upgraded or bought anew, and Microsoft provided very little information.

Apple's System 7 compatibility checker is a HyperCard stack that provides a report of the compatibility status of everything on a particular hard disk (or set of disks). It recognizes most of the popular applications and startup documents, and tells you what to do with them. (If this stack doesn't open by itself when you click it, you have a truly ancient version of HyperCard —



Apple's Compatibility Checker, a HyperCard stack included with the System 7 upgrade kit, indicates which programs, INITs and other files may cause problems under System 7.

you need version 2.0 or higher.)

The compatibility checker lists four categories of applications and startup documents: compatible (what a relief!), mostly compatible (huh?), must upgrade (sorry!), and not available (the kiss of death for these programs — Apple never tested them).

When we ran the checker on our disks, our most important applications, including MediaMaker 1.0, MacroMind Director 2.0.1, and Microsoft Word 4.0B, "passed" the test.

But a great deal more were just "mostly compatible," which could mean anything from irritating screen anomalies to devastating crashes, depending on what you do with the program. This list included Adobe Illustrator 3.0 and PhotoShop 1.0.7 (yikes!), HyperCard 2.0v2, StuffIt Deluxe 2.0.1, MicroPhone II version 3, and Adobe Type Manager 2.0. Upgrades to these programs are expected by late summer or fall, and some are available now—for example, Apple CD-ROM version 3.1 is avail-

able on AppleLink or from Apple dealers.

The "must upgrade" list was longer. Fortunately in some cases (such as Farallon's MediaTracks, Timbuktu, and SoundEdit), upgrades are available by calling the vendors, and the compatibility checker provides a convenient list of the vendors and their phone numbers. Others, such as the Apple CD-ROM driver software, are available from your dealer and can be downloaded from AppleLink. However, some important programs and desk accessories (such as Symantec's SUM Tools, and On Technology's On Location) are not yet upgraded—you just have to wait.

Apple provides a comment about each program it recognizes, indicating whether the program is incompatible with 32-bit addressing, with file sharing, or with virtual memory (in each case, you can use the program if you turn off the feature).

The "not available" lists (meaning no information was available) for our disks were, of course, the longest ones, and included programs such as MacroMind Accelerator 2.0B27, Letraset's ColorStudio 1.5B15, PicturePress 1.0 (Storm Technology), Font Downloader 3.30 (Adobe), RasterOps Monitors Extensions 1.53, Magic Menu 2.0 and Shortcut 1.0.1 (Alladin Systems), CalendarMaker 2.2.1 (CE Software), Map II 1.2, SCSI

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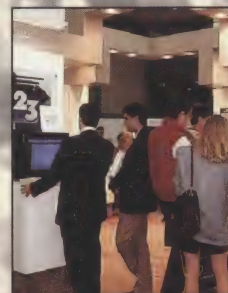
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- 4. No role

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- 25. Computer Consultant
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- 28. Administrator
- 29. Consultant
- 30. Corporate officer/owner/principal
- 31. Creative arts
- 32. DP/WP Manager
- 33. Engineer/Scientist
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- 39. Systems Analyst
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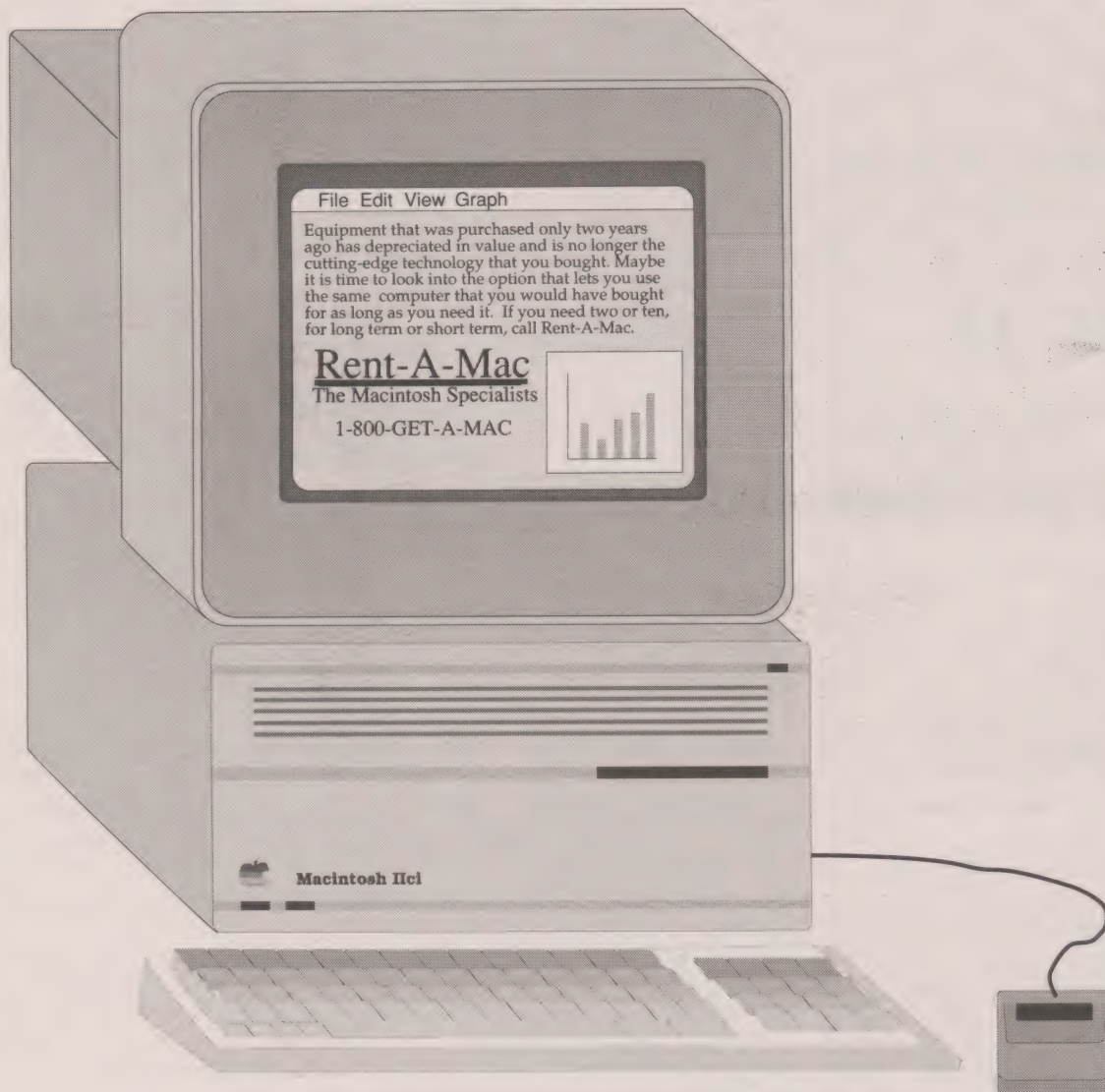
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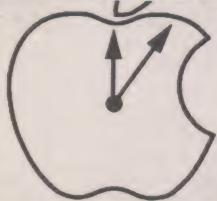
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FROM PAGE 40

Tool 1.0, R45 Formatter 3.03, SendPS 1.21, FreeTerminal 1.0, and Z88 MacLink 1.0.

On your system, this list would probably include any program you may have that 1) Apple never heard of, 2) Apple doesn't particularly like for some reason, or 3) System 7 has made permanently obsolete.

Procrastination Pays

Should I stay or should I go? I called many Mac-using friends, tried the compatibility checker on all my disks, and contemplated starting a therapy group for disenchanted Macaholics. But

procrastination is not easy. With various incarnations of System 6, I've been plagued by mysterious crashes, the causes of which I can't pin down.

When different Macs crash at different times, it is difficult to know the culprit, especially when the crash could be caused by different culprits. There are a few programs common to all my Macs that are under suspicion — the indispensable Timbuktu (Farallon), Berkeley System's After Dark screen saver (usually set to Fish! for the aquarium effect), Adobe Type Manager (required for all Macs that display or print documents), the ubiquitous Microsoft Word (which is usually active when crashes occur), a set of seemingly harmless desk accessories (hmm...), and a folder filled with utilities, some dating back to the dawn of the Mac. Oh yes, and System 6.07.

How can I stay with a System that crashes unexpectedly? When it isn't crashing (often enough to get work done), it exhibits flaky behavior such as "growing" to occupy more RAM over time. Do I have some sort of virus that has gotten through my phalanx of anti-virus programs?

"Because something is happening and you don't know what it is..." drawled Dylan on my CD player (an Apple CDSC player, by the way). Co-

incidentally, the system crashed inexplicably at this point, bringing this song to a halt on those words, and I had to restart the Mac. Once again, my installation of System 6.07 and its mysterious bug or virus had failed, leaving me speculating that a new installation of

System 7 was really the only way to go, and that I should find work-arounds (no matter how expensive) for all the programs that get left behind in the transition. A complete overhaul was the only way to de-spook my computer.

My friend Steve (a respected Macintosh journalist) said that he'd isolated his System 7 installation on a removable disk

cartridge so that he could boot it up when he needed it. Otherwise, he was sticking with System 6 for a while longer. "The Macintosh is now a big computer," he said, "and you may never ever again know completely what is going on inside it."

For me, the Macintosh is losing its personal feel. Sometimes it does seem to be beyond any realm of personal control. But I welcome the change: one day I will have a computer that fixes itself, without my intervention. We can only hope...

"Hal, where are you? Hal?"

"Y-y-y-essss, Dave?"

"Hal, I'm replacing you with an upgrade, Hal version 7."

"No you're not, Dave..."

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When not prying abalone loose from underneath rocks in the Pacific ocean, Tony Bove is prying secrets loose from his Macintosh. With his partner Cheryl Rhodes, Tony co-edits several newsletters, including the Bove & Rhodes Inside Report on Multimedia and the MacroMind Developer Letter. For details, contact him on MCI Mail (TBOVE), CompuServe (70105,722), or AppleLink (D0493), or by writing to Bove & Rhodes, Box 1289, Gualala, CA 95445.

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The BoCoEx Index of Used Computer Prices

The market was fast with lots of Compaq hardware making the news and IBM hardware passing by in a flash. While the first week of July was a fisherman's dream—slow and lazy with not too many nibbles—the mid-July market was jumping.

The wholesale segment of the Big Board was overflowing this week as lots of Compaq 286-era machines changed hands in eager trading. The flow of equipment out of corporate America is growing as major corporations adopt higher-end computing hardware and displace the computer darlings of the mid-1980s. Compaq 286s, like their IBM AT counterparts, have been the focus of most volume trading and while single units closed at \$800, the price for volume was almost half that figure. In any market, the larger the volume the lower the price, and 286 computers are trading in larger and larger volume. Most Compaq models traded at last week's prices with strong volume on the SLT-286 at \$1,700 and Portable 386 at \$1,900. Great deals if you don't need the latest technology.

IBM Early Models Are Up

While the overall trend in the market is forever down, there are moments when the market swings. Demand for the earlier IBM products

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HP Laserjet — Corrects Up

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IBM AT 339 30MB	775 (+50)		1000		700	
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IBM PS/2 Model 50Z 30MB	1300		1500		1200	
IBM PS/2 Model 55SX 60MB	1600		2200		1400	
Compaq Portable III 20MB	1060		1250		1000	
Compaq Portable 286 20MB	1100		1350		1000	
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Compaq LTE-286 20MB	1300		1600		1300	
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Macintosh IICX 80MB	3300		3600		3200	
Apple Imagewriter II	225		350		200	
Apple Laserwriter IINT	2000		2500		2000	
HP Laserjet	425		500		400	
HP Laserjet II	925 (+125)		1000		800	
Toshiba T-1200HB 20MB	750 (-50)		900		690	
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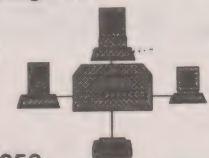
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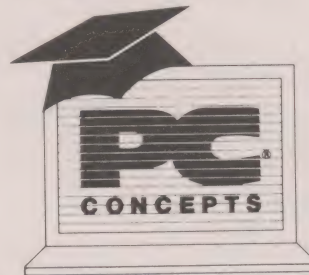
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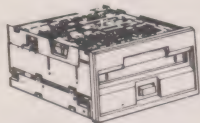
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NETWORK ADVISOR



By Michael Dortch

Multimedia Everywhere?

Multimedia has become as hot a computing buzzword as, say, Windows or System 7. However, multimedia — the integration of animation, video, graphics, text and voice at the computer user's desktop — is only now taxiing down the runway. Take-off will occur when the power of multimedia computing is more fully combined with the reach of computing networks, particularly local area networks.

LANs and Multimedia: A Natural Combination

For one thing, the promise of multimedia seems a tailor-made enhancement to the purpose and promise of networks: to aid collaboration among project-specific teams of colleagues. To consider the potential benefits of sending animation of a computer-designed prototype at work, a video deposition or a voice-annotated spreadsheet from desktop to desktop as easily as text-only electronic-mail is to glimpse the potential synergy of networks and multimedia computing.

Another compelling factor parallels the original purpose of all early LANs: resource-sharing. It isn't any more economical to put a compact disc player, videodisc or tape machine and who knows what else at every user's desktop than it is to put an expensive laser printer at each desk. Multimedia resources were designed to be shared, and the client-server network is an ideal place to share them.

Promising Signs

Several industry trends appear to underscore the coming confluence of multimedia computing and networks. Please consider:

- Local area network bandwidth — which puts the upper limits on how much data can be shipped around a network per second — is increasing. The Ethernet access method, with a current maximum data rate of 10 megabits per second, is feeling gradual heat from Token Ring LANs, which have top speeds of 16 megabits per second.

Some LANs, particularly "backbone" LANs that link Ethernet or Token Ring workgroup LANs together or LANs that support advanced graphical workstations, are based on the 100 megabit-per-second Fiber Distributed Data Interface (FDDI) standard.

- Digital Equipment Corp. is demonstrating full-motion, color video integrated with voice and data over a single FDDI

line. Digital and other companies are also working on an analogous standard that will carry equivalent bandwidth over shielded twisted-pair copper wire, albeit over shorter distances without signal reamplification. Meanwhile, sources report that 3Com Corp. is working with a San Jose, Calif. company called Crescendo Communications, to carry data at FDDI rates over the unshielded twisted-pair wiring so popular for Ethernet LANs.

- Data compression, which can help speed transmission of bandwidth-hungry video and graphic images, is

becoming more widespread and transparent to users. More and more networking products, from applications software to communications servers, are supporting easy data compression and decompression for network transmission.

• Although they are supporting incompatible proposed industry standards, as you might expect, both IBM and Microsoft are already heavily invested in multimedia. So are Apple Computer and Tandy Corp., as well as too many software companies to mention. Since these companies are already heavily invested in the network marketplace, their support for multimedia on networks is only a matter of time.

• Compact disc technology, which brought hiss-free audio to music, is finding greater and greater acceptance in computing. Much software is already available on CD-ROM, or CD-based read-only memory. CD-ROM network servers already exist as well. With erasable CDs for

computing already in limited production, and with prices falling, this key element of multimedia is just about "ready for prime time." (Next time you're in a store that has one, check out the number of connection ports on Commodore's new disc player, which plays audio, video or computer CDs and is priced competitively with home videodisc players. You're likely looking at one view of multimedia computing's near-term future.)

Possible Impediments

Three obvious potential roadblocks stand between most networks and multimedia nirvana. The first is a lack of useful, practical applications. Video electronic-mail is not necessarily an example of such an application. Videoconferencing, augmented with the ability to share video, text and graphics on the same screen, is. Work is proceeding apace on practical applications at many companies, and will appear quickly once greater market demand tentatively rears its head.

This demand will depend in part on the two other potential roadblocks. One is questionable access to sufficient bandwidth to implement multimedia applications without seriously degrading LAN performance. If a network is slow now, it will be intolerably slow when carrying multimedia applications, unless its underlying technologies are augmented or replaced. Developments in data compression and more accessible bandwidth are promising, but there are no guarantees that

these or other developments will become universally available in a timely fashion.

The third potential roadblock is the lack of industry standards mentioned above. The network marketplace has already seen the effects of non-existent or competing standards more than once. It can likely expect to see these effects again as multimedia computing continues to develop. We can but hope that useful applications and sufficient bandwidth become available quickly enough to encourage users despite the absence of standards. Then,

perhaps, users can drive development and acceptance of those standards, in marked contrast to much of the rest of computing.

What Now?

Meanwhile, networks and multimedia computing continue to march forward, and toward one another. Here are a few suggestions to help you prepare your network for a multimedia future:

• Work with your LAN resellers, to determine if your network is delivering sufficient bandwidth for today and tomorrow. Upgrades to certain network components may increase the effective bandwidth delivered to users' desktops, without wholesale replacement of entire LANs.

• Work with network users, to determine what applications of multimedia technology have potential relevance to your own networks. This will potentially have significant impacts on your bandwidth expansion and management strategies.

• Work with industry information providers, like holders of seminars and trade shows, to keep pace with multimedia developments. You don't need to be on a buying mission to glean a lot of knowledge from such gatherings. They're also good opportunities to find out what others in positions similar to your own are doing and thinking about.

Multimedia has a long way to go to become established on a preponderance of corporate LANs. However, it is coming, perhaps to a network near you. Even if your network and your company are small, falling prices and wider acceptance will make multimedia accessible to you, perhaps sooner than you think. Be prepared.

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Michael Dortch is the San Francisco-based author of *The ABCs of Local Area Networks*, from Sybex, Inc. He has been following computer networking for more than 12 years. The opinions expressed herein are solely his own.

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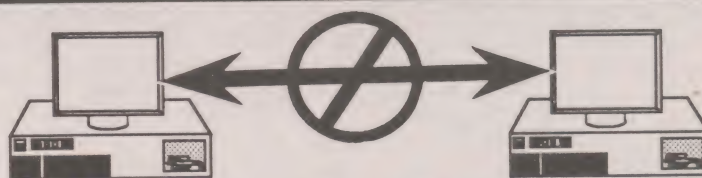
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Crystal Accounting is priced at \$249, and when purchased from Peachtree Software, carries a 60-day money-back guarantee. A \$25 restocking fee does apply to product returns.

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Crystal Accounting requires at least an IBM AT or compatible with a hard drive; 640K of memory (1 Meg is highly recommended); an EGA, VGA or Hercules Graphics Card; DOS 3.1 or greater; and Windows 3.0 or greater. A mouse is highly recommended. Crystal Accounting supports all Windows-compatible networks and printers, including dot matrix and laser printers.

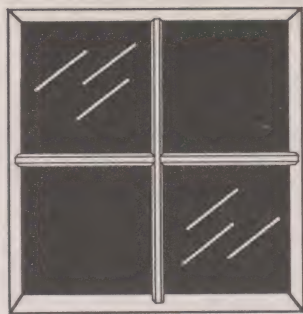
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By Charles Bermant

Two New Windows Utilities:

SitBack and Icon Creator

New Windows software abounds. Joe and Joanne N. User may not notice, but those of us "in the business" get information about new products — and even the products themselves — on a near-daily basis.

The software that trickles in — demonstrated by the two recently acquired programs discussed here — represents a tinkerer's dream. The range is wide: A traditional utility translated for Windows (like a backup utility), or a category specific to the new environment (icon design). Software to fine-tune every aspect of the Windows environment is emerging, allowing you to create and customize on an unprecedented level.

This paradise, however, is slightly troubled. Call it range with no focus, or depth without breadth. If these utilities are nearly astounding, they are still only utilities. The Windows market now boasts a range of accessories, while maintaining a narrowness of actual applications.

Windows' graphical status translates into a richness of visual options. Drawing tools and presentation packages are relatively plentiful and diverse. It's a different story for traditional PC applications. Entries in the word processor, spreadsheet, communications packages and database categories can be counted on one hand. If there is

excellence in each category, the number of choices still leaves something to be desired.

The database category is especially weak. Neither of the current entries, Superbase nor Omnis Quartz, have taken off. The purchase of Superbase by Software Publishing Corp. may provide some marketing muscle, but will do little to enrich the product category. Other Windows databases have been announced for delivery in the fall, so it will be a while before it is the platform of choice.

In the meantime we stock up on

utilities, jazzing up Windows in useful yet insubstantial ways. To use the shopworn automobile analogy, we refine the trim, improve gas efficiency and gussy up the dashboard, while suffering at a maximum speed of 55 mph.

Sit Back and Relax

Windows has a number of endearing little oddities, for instance the increased tendency to crash until you've become accustomed to the system and its commands. It then becomes even more critical to regularly save data, above and

beyond the standard reasons. Luckily, the save command (Alt-F-S) is almost universal to Windows applications. But sooner or later, you'll want to employ something more efficient.

SitBack, ported over from a DOS version, offers a brand of mindless, carefree backup. Which is to say, you load a driver prior to Windows, set options and forget about it.

The SitBack main menu provides control over the three essential "W"s of backup: What, when and where. After loading the program automatically, an icon (of a reclining guy in a red tie) is displayed on the desktop, and it flashes when the backup is in progress. It includes several smart but obvious features, including the option to exclude .EXE, .COM or any other files and the ability to work within or outside the Windows environment. This is a helpful concession to the fact that many Windows users still need to make regular DOS pit stops.

SitBack's default backup mode is incremental, only saving files that have been changed since the last backup. This task is slightly more complicated under Windows than DOS, as you may have several applications active at once.

Windows has its own safety net. It does not allow you to exit the system willfully without saving files. This does nothing to prevent accidents, or the tendency to turn your computer off at the end of the day and forget that an

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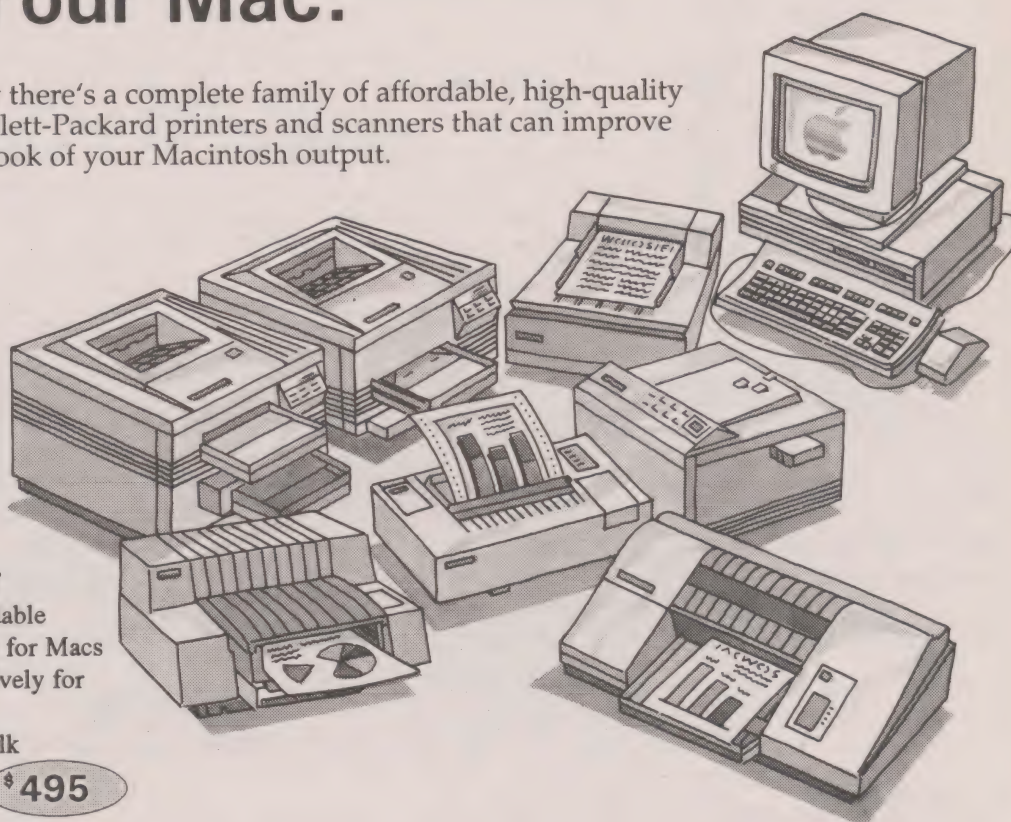
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application was minimized with a corresponding file unsaved.

In addition, you can select an infinite number of "backup configurations." For instance, you can backup all documents on odd numbered hours, spreadsheets on even hours and notepad files on the half hour.

SitBack is easy to install and use, although it is less transparent than some Windows applications. You may actually need to read the manual to learn some of the program's functions.

It also takes a liberty with the standard Windows command structure. Instead of locating the "File" option as the leftmost menu item, SitBack installs "Save and Exit" on most screens. This tampering may be confusing to some users, as it is inconsistent with every other Windows program you may have used. Still, this alternative placement shows that Windows is more flexible than you may think and can accommodate better or different ideas.

Icon-Oclasm

As the basis of the Windows interface, the icon provides the foundation for point-and-click. Each one of these little images (usually less than an inch square) represents a file or an application, where a mouse motion gets you loaded and ready to go.

DOS partisans, who treat the very idea of icons with contempt, will think

even less of an icon designing package. On one level, it represents true silliness. How creative can you get on such a small scale? And considering the benefits, why bother? If you're inclined toward this kind of thing, your time might be better spent sculpting little wooden figures or trying to slip a ship into a bottle.

In fact, this is one of those little things that need to be seen to be appreciated. Designing your own icons — although a time consuming process — is a convenient way to put the P back into PC.

IconCreator goes well beyond the competition, Icon Designer by hDC, or IconDraw, a share-ware program offered as part of Microsoft's Windows Resource

Kit. This second generation package resembles a paint program. It includes cut, fill and shaping tools, so you can draw and edit an iconic image with less of the painful pixel by pixel editing that the competition requires.

In addition, you can rotate, flip or invert an image on a mouse stroke, or reduce it to a "test" size. You still need

a modicum of artistic talent to develop a decent icon, but this program offers a shortcut and spares some of the agonizing.

True to the rules of a good utility, Icon Creator requires little or no support. As you point to any portion of the interface, its explanation appears at

the bottom of the screen. And if you maximize the program to the point where it fills the screen, an incredible level of detail is available.

You can take this whole iconic concept to the extreme, creating a new image for each active file. For instance, I could be writing a column about Windows word processors and develop a tintype representation of the file's content. By hooking

the icon to the file — an elementary Program Manager function — I add depth and detail to the computing experience.

That's one view. Such activity is fine for a freelance writer, software reviewer, or someone who thinks they can sell these things along the boardwalk. But anyone paying me by the

hour might suppose I was wasting a lot of time drawing dumb little pictures. It depends on your perspective.

A majority of new Windows products are utilities or development tools, implying that the environment is long on style and short on substance. If true, this aspect is not an absolute negative. Modifying Windows in little ways acts as an incremental productivity boost, allowing you one step at a time.

The environment will benefit when the traditional categories gain depth, but flow of small, interesting programs will continue. After all, while some users will collect different utilities, few will accumulate more than one word processor or database program.

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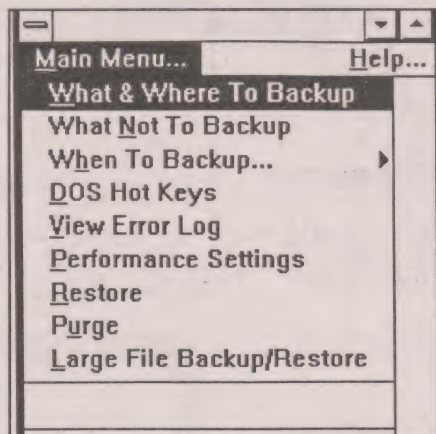
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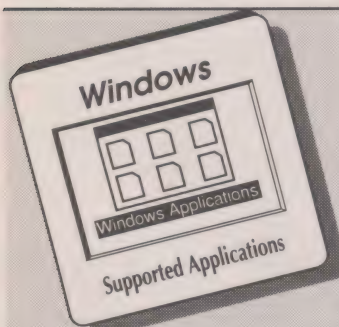
Charles Bermant is a freelance writer based in Gladstone, Oreg. He is the author of *The Windows 3.0 Companion*, published by Business-One Irwin and now available in bookstores.



SitBack's main menu allows you to customize SitBack to your exact preference and perform other backup and restore operations.

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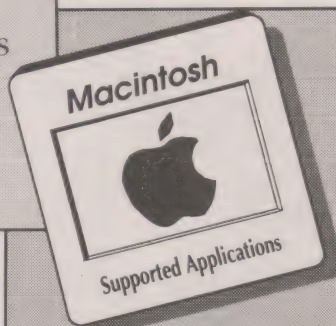
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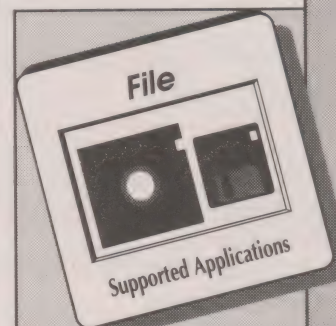


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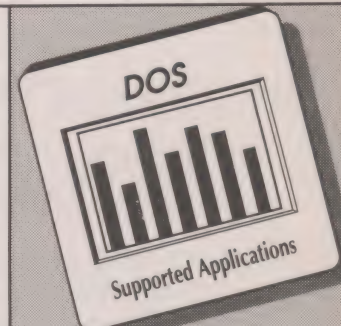
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CALENDAR

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We welcome notices of upcoming events for our Calendar. Notices must be received by the 10th of the month prior to publication. (August 10 is the deadline for our September issue.) Please mail information to: Calendar, Boston Computer Currents, 4 Chrysler Road, Natick, MA 01760. Or send your notice via MCI Mail to "MZIENTARA." Or Fax to 617/593-2682.

Please Note: Boston Computer Society (BCS) listings are courtesy of the BCS. BCS events are for members only; non-members are invited to attend one meeting before joining the society. BCS headquarters are at One Kendall Square, Cambridge, MA 02139. Telephone 617/252-0600.

August 6

BCS Macintosh

Watch for BCS-Mac at MacWorld! BCS-Mac is sponsoring a multitude of events at MacWorld Expo, including the BCS-Mac Expo Party and the now-traditional UGWUMP (User Group Welcoming/Unwinding/Meeting Place), this year in Meeting Room C (off Exhibit Hall A) of Bayside Expo Center. For more information, call the BCS-Mac office at 617/625-7080.

August 7

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A two-day (August 7-8) seminar for IBM PC, XT, AT, PS/2 and compatibles designed for technically trained personnel. Attendees should have prior experience with PC maintenance and troubleshooting. Workshop setting. Offered by the Center for Advanced Professional Development (Santa Ana, Calif.). To be held in Boston. Fee: \$695 with discounts available. Call 714/261-0240.

August 11

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EVENT SPOTLIGHT

MacWorld Exposition

Billed as "the largest Macintosh event in the world," MacWorld Expo will be held August 6-9 at the World Trade Center and the Bayside Exposition Center. More than 400 companies will exhibit. Prices at the door: All-Conference Sessions & Exhibits, \$80 (cash only); Exhibits-Only, \$25 (cash only). Call the MacWorld Expo/Boston Hotline at 617/361-3941.

\$295. Exhibitor fee: \$795. Produced by Soft•letter (Watertown, Mass.). Call 617/924-3944.

August 12

BCS Digital

Turning Rainbows Into PCs. Norman Johnson presents how to turn the Rainbow into a PC. 7:30 pm. DEC, Waltham Sales Office, Boole Conference Room, 235 Wyman Street, Waltham, Mass. Call Norman Johnson at 508/285-6839.

August 13

Enterprise Networking, Understanding the Fundamentals

A two-day (August 13-14) seminar for those with no previous experience in communications or networking, or people with some background but who need an update. Offered by the Center for Advanced Professional Development (Santa Ana, Calif.). To be held in Boston. Fee: \$745 with discounts available. Call 714/261-0240.

A Complete Introduction to Lotus 1-2-3

A three-day course (Tuesdays: August 13, August 20, August 27) offered by the Boston Center for Adult Education. Meets at ComputerPlace at the Museum of Science, Boston. Tuesdays, 6-9 pm. Taught by Steve Rubin, computer programmer & trainer. Fee: \$149. Call 617/267-4430.

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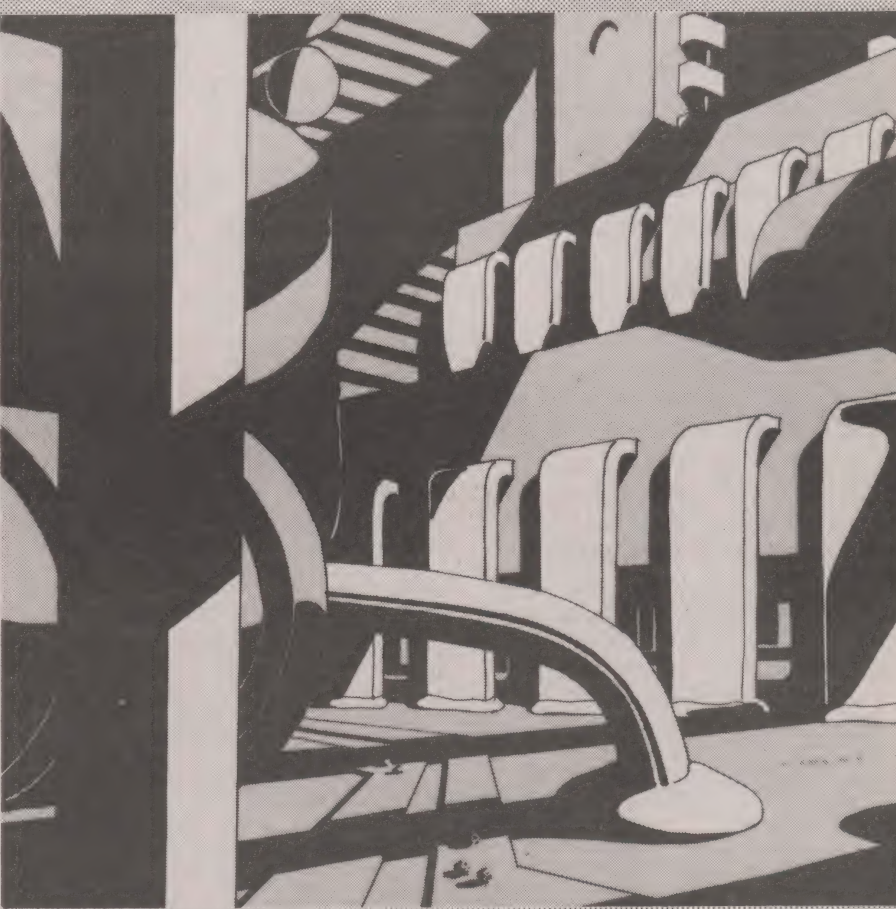
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Originally released in December 1987, the hard-cover edition of **WOMEN, TECHNOLOGY & POWER** (Amacom Books, New York, 282 pp.) is now available directly from the author at **25% OFF THE ORIGINAL PRICE**. (The author will be happy to autograph copies upon request.) Please send a check or money order for \$15.95 per copy (shipping & handling included), payable to the author, to:

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19 ☐ Research/Development

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21 ☐ Other business services

22 ☐ Advertising

23 ☐ Sales/Marketing

24 ☐ Personnel Placement

25 ☐ Entertainment

26 ☐ Other (please specify) _____

22 Title (check one only)

01 ☐ Chairman/Pres./Owner/Partner

02 ☐ VP—All

03 ☐ Controller/Treasurer

04 ☐ Director

05 ☐ General Manager

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07 ☐ Project Manager Chief/Group Leader

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11 ☐ Other Administrator

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13 ☐ Accountant

14 ☐ Attorney

15 ☐ Consultant/Advisor

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17 ☐ Systems Analyst

18 ☐ Writer

19 ☐ Coordinator

20 ☐ Programmer

21 ☐ Engineer

22 ☐ Educator

23 ☐ Representative

24 ☐ Other (please specify) _____

25 Company Size (check one only)

A ☐ Under 10 employees E ☐ 250-999

B ☐ 10-24

F ☐ 1000-2499

C ☐ 25-99

G ☐ 2500-4999

D ☐ 100-249

H ☐ Over 5000

26 Department (check one only)

01 ☐ Accounting

02 ☐ Administration Management

03 ☐ Communications

04 ☐ Consulting

05 ☐ EDP/MIS

06 ☐ Education/Training

07 ☐ Engineering

08 ☐ Finance

09 ☐ Marketing

10 ☐ Operations

11 ☐ Personnel

12 ☐ Production/Plant

13 ☐ Purchasing

14 ☐ Research & Development

15 ☐ Sales

16 ☐ Other (please specify) _____

Does your firm have personal computers?

☐ Yes: If yes, please indicate quantities below. Complete both columns.

☐ No

A: Number
currently
owned

B: Number plan to
purchase within
next 12 months

A _____ B _____ IBM PC/XT Compatible

_____ IBM PC/AT (286) Compatible

_____ Macintosh Classic or SE

_____ Macintosh LC

_____ Macintosh IIcx, IIsi, or IIfx

_____ Macintosh IIx

_____ Macintosh Portable

_____ Amiga 500

A _____ B _____ Amiga 2500 or higher

_____ Atari ST

_____ NeXT Workstation

_____ Sun SPARC system

_____ Other (Please Specify)

30 Please estimate your department's budget for computer hardware, software and supplies for the next 12 months:

A ☐ Over \$500,000

B ☐ 250,000 to 499,999

C ☐ 100,000 to 249,999

D ☐ 50,000 to 99,999

E ☐ 25,000 to 49,999

F ☐ 10,000 to 24,999

G ☐ Under 10,000

31 Through what channels will your department purchase its hardware software and supplies? (Check as many as apply)

A ☐ Computer Retail Store

B ☐ Distributor/Wholesaler

C ☐ Value Added Reseller

D ☐ Consultant

E ☐ Mail Order

F ☐ Manufacturer

G ☐ Other _____

In which of the following ways are you yourself involved with personal computers, accessories and supplies?

☐ Use them

☐ Recommend them

☐ Establish specifications

☐ Approve purchase

☐ Acquire them

☐ Evaluate or select suppliers

☐ Train people to use

☐ Sell them

☐ Develop or manufacture

☐ No involvement

☐ Other involvement (please specify) _____

32 For how many personal computers or microcomputer systems do you have this involvement? (Check one only.)

A ☐ 1-3

D ☐ 25-49

B ☐ 4-9

E ☐ 50-99

C ☐ 10-24

F ☐ 100 or more

PLEASE BE SURE TO SIGN YOUR NAME AND INDICATE YOUR TITLE

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Have you answered all questions?

CALENDAR

FROM PREVIOUS PAGE

people who want to upgrade to System 7.0 in their small-to medium-sized offices. He will focus on how to install, configure and use Apple's newest system software in environments of two or more Macintoshes. You'll learn about TrueType fonts, using the new Finder, aliases, virtual memory, and file sharing. Attendance is limited. Reservations required. Demo format; not hands-on. Fee: BCS members \$25, non-members \$50. 6:30 pm. BCS-Mac Office, 48 Grove Street, Davis Square, Somerville, Mass. Call the Mac Office at 617/625-7080.

August 14

BCS IBM, PC Technical Subgroup

Carbon Copy 6.0, a Low-Cost LAN and 386/486 Cache Compatibility. Jay Bailey and Loretta Lombard of Microcom, Inc. (Norwood, Mass.) and BCS member Ira Perlow demonstrate and explain Carbon Copy 6.0 and 386/486 cache compatibility issues. 7 pm. GTE Laboratories, Auditorium, 40 Sylvan Road, Waltham, Mass. Call Bill Claff at 617/235-9505.

August 15

BCS Publishing

New Developments in Printing. Whatever you produce by desktop publishing, ultimately you have to get it printed. Local printers at all levels tell of the latest developments in their industry and answer questions on the printing process. 7 pm. The New BCS Center, Building 1400, 1 Kendall Square, Cambridge, Mass. Call Caleb Tower at 617/437-7900.

BCS Macintosh, Beginners' Night

Mystified by Your Mac? Don't know where to find the Finder? Then Beginners' Night is for you! Bring your questions, problems, or puzzlements to the Macintosh Office in Davis Square, where the activists of BCS-Mac will be on hand to help you out. After the meeting, experiment with equipment or shop from the library of public-domain software. 7-9 pm. BCS-Mac Office, 48 Grove Street, Davis Square, Somerville, Mass. For more information, call the BCS-Mac Office at 617/625-7080.

Enterprise Networking

The Communications Network of the Future is Here Now. A two-day (August 15-16) seminar that describes the products and services available and currently in use, to help attendees understand and work with today's networks. Offered by the Center for Advanced Professional Development (Santa Ana, Calif.). To be held in Boston. Fee: \$745 with discounts available. Call 714/261-0240.

August 19

Netware 3.11: System Manager

A three-day (August 19-21) hands-on course offered by Application Systems Group, Inc., 91 Montvale Av-

enue, Stoneham, Mass. Fee: \$895. Call 617/279-2790.

August 20

BCS IBM, OS/2 Subgroup

Round Table Meeting. Your chance to come and find out anything you want from our very diverse and knowledgeable members. This is your opportunity to find answers to those questions that have been nagging you. 7:30 pm. IBM Waltham office, 404 Wyman Street, Waltham, Mass. Call Bill Langlais at 508/462-1253.

Designing with PageMaker

A two-day course (Tuesdays: August 20 & August 27) offered by the Boston Center for Adult Education. Meets at ComputerPlace at the Museum of Science, Boston. Tuesdays, 6-9 pm. Taught by Lance Robinson, president of Bit-by-Bit, a consulting and training firm. Fee: \$112. Call 617/267-4430.

August 21

WordPerfect 5.0/5.1 Step by Step

A two-day (August 21-22) hands-on seminar offered by Systemetrics, Inc., Renaissance Park, 35 Sockanosset Crossroad, Cranston, R.I. Fee: \$390. Call 401-275-2200.

August 24

BCS IBM, North Shore Chapter

Computer Yard Sale. Software, hardware and magazines on sale with proceeds benefitting the North Shore Chapter. Contact Carl Gates if you have articles to donate or sell, at 508/774-0274. 8 am Carl Gates' house, 9 Chestnut Street, Danvers, Mass.

August 26

Microsoft Windows 3.0

A one-day seminar offered by Boston University Metropolitan College, to be held at the PDG Training Center, 99 Bedford Street, Boston. It is recommended that attendees have some experience using a Windows application. Fee: \$249. Call 508/649-9731 or (outside Mass.) 800/733-3593.

August 27

BCS User Interface Design

Private Eye. Reflection Technologies presents Private Eye, a virtual product display. 7 pm. MIT Sloan School, Building E51, Room 140, Memorial Drive, Cambridge, Mass. Call Charles Linskey at 617/646-9631.

August 29

Organizing a Hard Disk

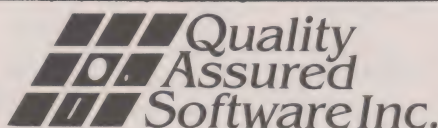
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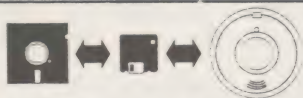
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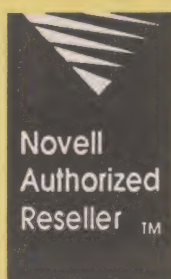
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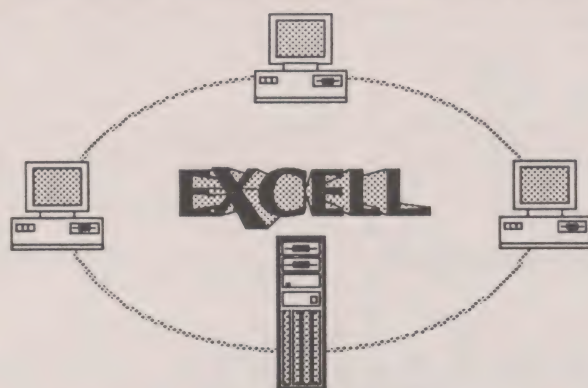
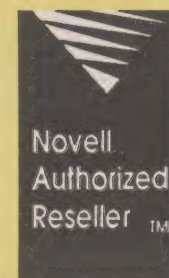
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By Lincoln Spector

Child's Play

I've never really approved of letting children near computers — jelly isn't good for keyboards. So when Nebuchadnezzar's grandmother sent him a copy of that new Young Silicon educational game, Valley of the Lost Sectors, I quietly hid it at the top of a bookshelf.

Never underestimate a seven-year-old's ability to climb. I was writing a Pascal program to copy to floppies all of the files on my hard disk containing the name "Irving" (Look, do I ask you about your work habits?), when Nebuchadnezzar came in, Valley of the Lost Sectors in his hand. "Daddy, what's this?"

Quickly cleaning the remains of my latest peanut butter and jelly sandwich out of the keyboard, I spun around and sighed. At least he hadn't found the adult game, Lost Clusters in Chains, that I'd hidden on the other bookshelf. Nevertheless, I had to choose between honesty and the best policy. "That's some very boring software that Daddy has to..."

"Is this the new game that grandma said she sent me but you said never arrived?"

I was stuck. "Yes, it just arrived today. Tell you what, let me finish what I'm doing and we'll play it."

"Okay," he said happily. I turned back to my work. "Daddy, is it a fun game?"

"Neb, I'm working. The sooner you let me finish, the sooner we play the game."

"Sorry." I turned back to the computer. "Daddy, how do you play it?"

I knew I was beaten. Exiting out of ReallyFast Pascal, I took the game from Neb and popped the one floppy in Drive A:. Examining the disk, I was hit by a wave of nostalgia — the program was copy-protected. Harking back to those days when Lotus 1-2-3 was new and exciting, Young Silicon set out to make sure that no one would ever soil their product by putting it on a hard disk.

Three minutes later, Valley of the Lost Sectors was safely installed on my hard disk. Loading the program, my eyes were hit by a full-color graphic of a castle surrounded by monsters, while my ears were assailed by an uptempo version of Beethoven's Fifth — arranged for a PC clone's speaker.

I consider myself pretty good with software. Hand me any presentation graphics program, project scheduler, or relational database manager, and I'll have it figured out in no time. But a child's game? That was going to take some work. Nebuchadnezzar couldn't wait. "I want to play! How do you do it? How do I play? C'mon Dad!" I

pushed him back (gently, of course), picked up the documentation, and began to study.

Ninety minutes later, I had the game figured out. When you play Valley of the Lost Sectors, you become the Real Time Kid, a young white male with jerky movements and a body that appears only in silhouette. The object of the game is to journey — as the Kid — into the Castle of Lost Data. There you must restore the Archive of the Ancient Spreadsheet — probably an old VisiCalc file.

Obstructing you is the Real Time Kid's arch nemesis, the Bad Sector. This villain puts assorted monsters, such as Big Bugs and OEMs (Obscure Error Messages), in your path, trying to keep you from reaching your goal. If you don't reach the castle in time, the Bad Sector scrambles your FAT (a really interesting graphic), and you can't play again until you reformat your

disk (all pretend, I'm glad to say). The purpose of this game is to help your child feel comfortable around computers.

With meat his side, Nebuchadnezzar started working his way through the valley, track by track. To move to the next track, he had to collect eight Bits of Information by capturing some of the little Attributes running about, and answering their questions. The first attribute he caught asked him:

I'm pretty to look at,
And I don't take much thought;
You can buy me for little,
But I'll cost you a lot.

What am I?

I was still puzzling over this one when Neb cried out "That's easy; it's Microsoft Windows." It wasn't long before he caught another Attribute:

I'm Help for your troubles
If you know where to find me;
I've been left in the wrong place,
I'm _____.

"WordPerfect's F3 key," Neb called out and typed in before I had quite finished reading the poem. Where was he getting this information?

At that rate, it wasn't long before Neb was on the second track. He was up to the third when he had his first big setback. A Divide Overflowed on him, sending him back to the first track. He reacted to this the same way a more mature user would have: he threw himself on the floor and starting crying. "That's not fair!" he screamed over and over again as I carried him into his own room, shut the door, and returned to the computer.

I had intended to get back to my work in ReallyFast Pascal, but I found myself looking at the Real Time Kid and wondering how many tracks I could get through. I figured I would spend a quick five minutes with the game before getting back to work.

Half an hour and two tracks later, I heard a familiar yet accusing voice behind me. "Daddy, that's my game."

Never one to argue with unassailable logic, I got out of my chair and let Nebuchadnezzar take over. "Do I need to stay here with you?" I asked.

"Um, no."

I left the study, went into the living room, and settled down with a good book. It was nearly three hours before I woke up and returned to the study. Neb was still at the computer, although he was no longer in the game. He was, in fact, at the ReallyFast Assembler screen.

"What are you doing?" I asked.

"By the time you get to the ninth track," he explained, "you've learned some assembly. I just wrote a program for you. It copies to floppies all of the files on your hard disk with the name 'Irving' in them." I guess he did learn something.

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Lincoln Spector is the author's real name, appearing on both his driver's license and his birth certificate. An Assistant Editor at PC World, Lincoln can be reached via MCI mail as LSPECTOR.

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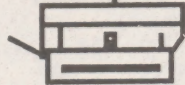
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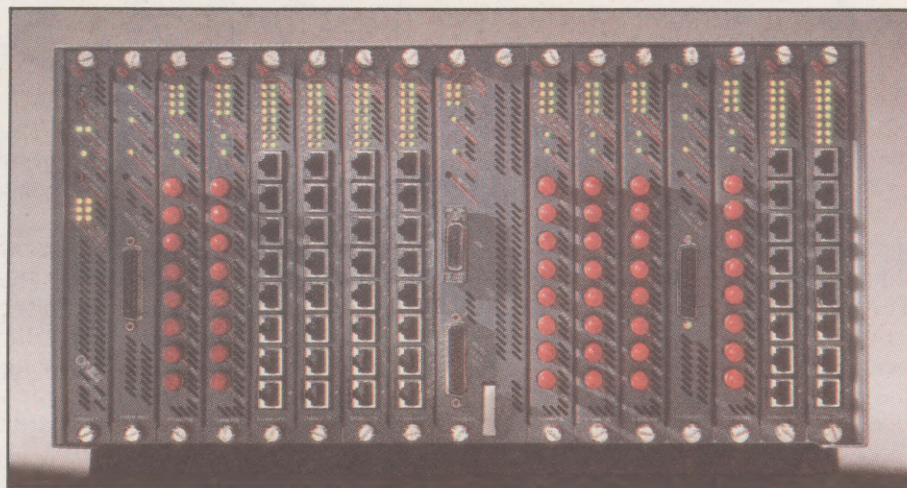
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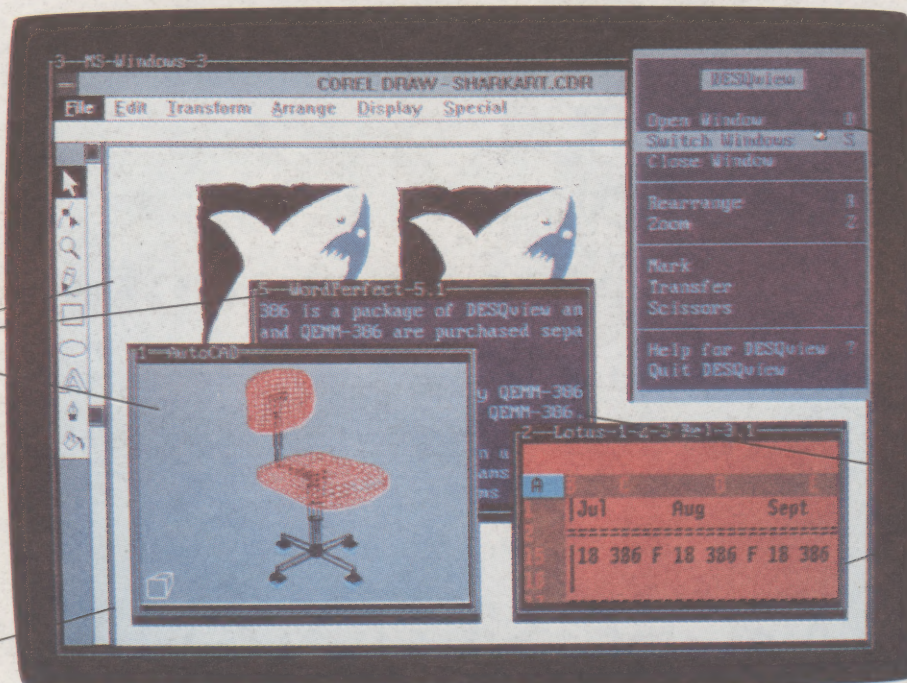
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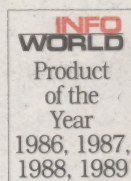
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